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Man for white "Leprosy or Kohore

* Babchee, the seeds of Psoralea Corylifolia a native drug has been highly recommended by Dr Lenny Lall Dey & found a certain Cure - In Twins of Indian 12th Sept 1868 -

* called by Parsees "Bauchee"

A MANUAL

OF

PRACTICAL THERAPEUTICS,

CONSIDERED CHIEFLY WITH REFERENCE TO

ARTICLES OF THE MATERIA MEDICA.

BY

EDWARD JOHN WARING, F.R.C.S., F.L.S.,

SURGEON IN HER MAJESTY'S INDIAN ARMY.

Second Edition.

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LONDON:
JOHN CHURCHILL & SONS, NEW BURLINGTON STREET.

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LONDON:
BENJAMIN PARDON, PRINTER,
PATERNOSTER ROW.

TO

THE MEDICAL OFFICERS

OF

HER MAJESTY'S FORCES

SERVING IN THE EAST INDIES,

This Volume is dedicated,

WITH THE SINCERE HOPE THAT,

AMIDST THE EVER-VARYING CIRCUMSTANCES OF THEIR INDIAN CAREER,

IT MAY AFFORD SOME HINTS AND SUGGESTIONS,

TENDING TO THE ALLEVIATION AND BENEFIT OF THOSE

WHO MAY BE PLACED UNDER THEIR

CHARGE.

PREFACE TO THE SECOND EDITION.

When, some twelve years since, I employed my leisure hours at a remote and solitary station in Burmah, in arranging my notes—many of them made years previously, for my "Manual of Practical Therapeutics"—I little anticipated that the work would ever arrive at a Second Edition: that it has done so cannot be otherwise than most gratifying to my feelings; and I would take this opportunity of expressing my grateful thanks to my professional brethren, especially to those in India, for the kind and practical approval which has been accorded to the work.

It was originally intended to have brought out the Second Edition at a much earlier period; but it having been represented to me, by those on whose judgment I could place reliance, that its value would be greatly enhanced by postponing its publication until after the appearance of the "British Pharmacopœia," it was accordingly delayed; and when that work was at last issued, it was found that the changes introduced were so numerous and important, that a further delay (extending over some months) was required to bring the text up to the standard established by authority. This delay, however much regretted

by me, will, it is hoped, be found to have resulted in increasing the practical utility of the work.

This Edition contains all the preparations of the new British Pharmacopœia, together with notices of the principal new remedies which have been introduced into practice since the publication of the First Edition in 1854. It may, perhaps, be objected that some of these have been too slightly touched upon, whilst undue prominence has been given to others. On this point I would observe that, in a work of limited size such as the present, it was impossible to treat all articles to the extent which they perhaps deserve; and that, in selecting articles for particular or extended notice, I have exercised my discretion to the best of my ability. It is believed that nothing of vital importance in therapeutic discovery has been omitted.

Since the publication of the First Edition of this work, the treatment of Inflammatory and Febrile Affections has been in a transition state, diffusible stimulants having, in a great measure, replaced Blood-letting, and other antiphlogistic remedies formerly in vogue. Although I have been unable fully to recognise the great asserted superiority of the new mode of treatment, to the total exclusion of other measures, which centuries of experience have proved to exercise valuable remedial powers, yet my own more extended experience, as well as the recorded cases of others, has conclusively shown that the old mode of treatment was capable of great improvement, and that we may have recourse, with manifest advantage, to stimulants at an earlier period, and in larger quantities, than was formerly considered either advisable or safe. A similar remark applies, with equal force, to the employment of Quinine in the treatment of Paroxysmal Fevers, in which depletion and Calomel are, in a great measure, replaced by the preparations of Cinchona. These remarks are necessary to explain the modifications which some of

the articles, as they appeared in the First Edition, have undergone. It has been my earnest endeavour to hold the balance evenly—a work of no small difficulty, under the circumstances. It is for the reader to determine how far I have successfully executed my task.

The new system of weights and measures introduced by the General Medical Council in the British Pharmacopœia has been adopted in the case of all officinal preparations, excepting those of the London Pharmacopœia, and in all prescriptions and directions given on my own authority. As, however, it was found excessively inconvenient, and well-nigh impracticable, to alter the formulæ of others to the new system, involving in every case the substitution of grains for scruples and drachms, and (in consequence of the difference between the British Pharmacopœia and Troy ounce) in many instances for ounces, it has been deemed preferable to allow the quoted prescriptions to stand as they were written by their authors. It will, therefore, be necessary for the reader to remember that the old symbols always represent the weights (Troy) and measures of the London Pharmacopœia, whilst the new symbols refer to the weights and measures of the British Pharmacopœia, the main difference between the two systems being, that in the former the solid ounce (℥j.) contains 480 grains; in the latter, the solid ounce (oz. j.) contains 437·5 grains.

As in the former Edition, the alphabetical plan of arrangement has been generally followed; but to obviate any inconvenience arising from occasional departures from it, necessitated by recent alterations in nomenclature, a full Index of the medicines and preparations noticed in the work has been added.

The authorities quoted in this work are too numerous to be specified. Information has been gleaned from all sources, given in most cases in the text. My especial acknowledgments, how-

ever, are due to Dr. Garrod, from whose valuable work, "The Essentials of the Materia Medica" (1864), much information has been derived.

In conclusion, I would tender my especial thanks to my friend Dr. F. C. Webb, who kindly undertook the onerous and responsible task of seeing the work through the press. The aid he has afforded has contributed in no small degree to any additional merit which this Edition may possess over its predecessor.

London, *March* 1*st*, 1865.

PREFACE TO THE FIRST EDITION.

In offering the following pages to the notice of the Profession, the Compiler—for he aims at no higher distinction—feels that a few words are required to explain his reasons for adding another work to the many which have of late years issued from the press on that important department of Medical Science, Materia Medica and Therapeutics. In most works of this class, many of them distinguished by much research, talent, and a profound knowledge of the subject of which they treat, the botanical, chemical, and pharmaceutical departments have been so fully and minutely entered into, that their authors have doubtless found it impossible to devote that space to the consideration of the medicinal application of the various articles of the Materia Medica to the treatment of morbid conditions of the human body, which, from its great practical importance, it demands. By this remark, it is not intended in the smallest degree to detract from the value of these works, nor to imply that the therapeutic department has been omitted altogether; so far is this from being the case, that even the Manuals and smaller works on Materia Medica contain many interesting facts relating to the application and uses of the various medicines, especially when these are the results of the experience of the respective authors, whilst, in the larger and more costly works, particularly in that of Dr. Pereira, a large mass of valuable and important therapeutic facts may be found. It must, however, be admitted by every one conversant with works of this

class, that the department of Therapeutics has not generally received the same attention or occupied an equal space with that allotted to the consideration of the chemical and botanical characteristics of the various substances constituting the Materia Medica.

In the following pages the writer has attempted, however imperfectly he may have fulfilled the task, to remedy this deficiency, by collecting and bringing within a small compass the opinions and experience of the most eminent writers of modern times, as to the real value of the articles of the Materia Medica in the treatment of disease. Such a work has, in the opinion of the Compiler, been long needed, especially by the younger members of the Profession and by students. There is one class of medical men, who may be denominated the floating practitioners, surgeons in the army, the navy, the East India Company's Service, those engaged in emigrant or merchant ships, and also those resident in isolated spots in our distant colonies, to whom it is confidently expected a work like the present will prove acceptable and useful.

It has often been remarked that a little book is a great evil, and it has been much the fashion, of late years, to decry the use of Manuals and small works, as affording imperfect and garbled information, and imparting an amount of knowledge which, as it is easily obtained, is supposed to be evanescent, and, in some cases, even injurious. The medical man, however, whose lot has been cast in large and populous cities, where the personal opinions and advice of the most eminent practitioners of the day can be obtained, where museums, rich in anatomical preparations, are easily accessible, and where books on every known disease are procurable at a comparatively small cost, and with the delay of but a few hours, can entertain but a very imperfect idea of the great value and importance of works of this description. The writer, in his own person, has too often experienced their value not to bear his testimony in their favour, and he trusts that as much useful information and as many practical hints may be found in the following pages as he has derived from the Manuals of others.

In the arrangement of this work, the botanical and chemical characteristics of the articles of the Materia Medica have been

very briefly enumerated, in order to allow a larger space for the consideration of their therapeutic uses; those who are desirous of becoming more fully acquainted with the former departments, will find them fully detailed in any modern work on Materia Medica, particularly in the able Manual of Professor Royle, or in the more extended and talented volumes of Dr. Pereira.

The Compiler is painfully alive to the fact that, even in the department of which he has undertaken the illustration, many deficiencies and shortcomings will be found to exist; and this leads him to mention briefly the circumstances,—most disadvantageous ones it must be allowed,—under which the following work was prepared for the press. It was compiled and arranged at Mergui, a small isolated station in the Tenasserim Provinces (part of ancient Burmah). It is the southernmost part occupied by the East India Company's troops in the above provinces, being situated about 240 miles from Moulmein, above 1,000 miles from Calcutta, and a still greater distance from Madras. In times of peace, the only means of communication with the above places was by a monthly steamer, and after the outbreak of the Burmese War (1851), by a small sailing vessel, whose visits, like those of angels, were few and far between. Thus, as may readily be supposed, great difficulties existed in obtaining books for reference. Calcutta is the nearest place at which these can be procured, and a space of at least three months must necessarily elapse between the periods of writing to that city for books and receiving them, or, in the stead, a polite note from the booksellers, to the effect that the work or works in question are not procurable in Calcutta, but that, on receiving instructions to that effect, they will procure them from England by the next Overland mail, thereby entailing a delay of several months, and a considerable extra expense. However anxious a writer, under such circumstances, may be to accumulate facts or to verify notes which have been taken years previously, without any view to subsequent publication, the obstacles thrown in his way are so numerous, that it is impossible to overcome them entirely, or to complete a work to his satisfaction. In addition to these difficulties, it may be added that the writer was "in orders" to proceed to an appointment at least 1500 miles from Mergui whilst the work was proceeding to a termi-

nation, and that, in consequence, he was much hurried in effecting its completion, as travelling in India is but little suited for carrying on any literary occupation.

These details, which may seem to some unnecessary and tedious, are mentioned in order to exculpate the Compiler from the charge of neglect, or want of accuracy, which might, perhaps, be laid to his charge by those whose knowledge of medical literature entitles them to pass an opinion on the subject. He has endeavoured studiously, to the best of his ability, to render the quotations as correct as possible, and to give his authorities without mistake, but it is feared that occasionally errors may have crept in; if such exist, they are purely unintentional, the writer having in every instance, as far as lay in his power, verified the correctness of his statements, and never, he believes, arrogated to himself observations which justly belong to others.

The following are the works principally referred to in this Manual, being those to which the Compiler had direct access during its arrangement and compilation:—Encyclopædia of Practical Medicine, by Drs. Forbes and Conolly. The Library of Medicine, by Dr. Tweedie. Copland's Dictionary of Practical Medicine (vols. i., ii.). The Lectures of Watson (1848), Graves (1848), and Elliotson. Hope, On Diseases of the Heart. Alison's Principles of Pathology. Sir B. Brodie, On Diseases of the Urinary Organs (3rd Ed.). Prout, On Stomach and Renal Diseases (4th Ed.). Marshall Hall, On Diseases of the Nervous System, and also his edition of Underwood, On Diseases of Children. Johnson and Martin, On the Influence of Tropical Climates (6th Ed.). Dr. D. Davis, On Obstetric Medicine. Dewees, On Diseases of Females (6th Ed.). Dewees, On the Management of Children (7th Ed.). Dewees, Rigby, Churchill, and Conquest, On Midwifery. Erasmus Wilson, On Diseases of the Skin. Howard's Pathology of the Eye. Malcolmson, On Beri-beri. Lugol, On Scrofula (translated by Dr. Ranking). Lugol, On Iodine (translated by Dr. O'Shaughnessy). Louis, On Phthisis (translated by Dr. Cowan). Lloyd, On Scrofula. Scudamore, On the Inhalation of Iodine, &c. The works on Materia Medica which have been consulted, and from which many valuable quotations have been taken, are those of Drs. Pereira, Anthony Todd Thompson, Duncan, O'Shaughnessy

(Bengal Dispensatory and Pharmacopœia), Ainslie, Ballard and Garrod, Royle, Dunglison (Medical Dictionary), Nevins, and Hooper. In the department of Surgery, the works chiefly consulted are, Cooper's Surgical Dictionary (7th Ed.); Liston's Elements of Surgery; Liston's Practical Surgery; Sir Astley Cooper's Lectures; Lizar's Practical Surgery, &c. In Physiology, the works of Liebig, Richeraud, and Müller. Much valuable information has also been derived from the medical periodicals of the day, particularly from Dr. Ranking's Half-yearly Abstract of the Medical Sciences, and Braithwaite's Retrospect of Medicine.

ERRATA.

Page 178, sect. 629, *for* "Calcis Sulphuretum" (Sulphuret of Lime), *read* "Calcii Sulphuretum" (Sulphuret of Calcium).
Page 204, sect. 734, *for* "Spiritus Lethialis," *read* "Spiritus Lethalis."
Page 239, line 30 from top, *for* "Quiniæ Disulphas," *read* "Quiniæ Sulphas."
Page 272, last line, *for* "contains," *read* "contain."
Page 302, *for* "Etheris Spiritus," *read* "Ætheris Spiritus."
Page 324, line 6 from bottom, *for* "are exemplified," *read* "is exemplified."
Page 890, line 17 from bottom, *for* "Tinct. Iodini," *read* "Tinct. Iodi."
Page 894, line 12 from top, *for* "Decoct. Querci," *read* "Decoct. Quercûs."
Page 896, line 7 from top, *for* "Decoct. Querci," *read* "Decoct. Quercûs."

INTRODUCTION.

THERAPEUTICS, Therapeia, Therapeutica, from θεραπεύω, "*I cure.* By this term is meant the application of remedies for the cure, alleviation, or prevention of disease. Taken alone, and in its widest sense, it includes not only medicinal agents, but many surgical operations, as lithotomy, amputations, &c. In connexion with Materia Medica, the meaning of this term is limited to the application of medicinal substances for the purposes above indicated. If taken in its fullest sense, it embraces so wide a range of subjects, that it would be impossible, in a small volume like the present, to bestow a due consideration on the whole; and it is very evident, that a treatise on the science in its more limited sense, namely, that of including the articles of the Materia Medica alone, would be very incomplete and defective. In the following pages, therefore, some of the most ordinary remedial agents, which properly belong to the surgical department, as blood-letting, issues, setons, and acupuncture, have received notice, as being inseparably connected with the former class of therapeutic agents. Electricity, electro-magnetism, and galvanism, which cannot properly be ranged in either of the above classes, have also been considered, with reference to their effects on morbid conditions of the body.

Therapeutics and pathology are so intimately connected with each other, that unless the latter be well understood, theoretically as well as practically, it is almost impossible to be a successful therapeutist. It is true, that occasionally empirical practice may succeed in effecting cures, but he alone who is well grounded in

the science of Pathology can administer remedies with a hope of anything like uniform or permanent success. By the term Pathology is meant a thorough knowledge of disease, its causes, pathognomonic signs, and symptoms, the morbid changes which take place in the several organs of the body, and an intimate acquaintance with morbid anatomy. But this does not comprise all that is required to form a sound therapeutist. He should be thoroughly acquainted with the medicines which he employs, their natural history, their chemical composition, their physiological effects on the healthy frame, their *modus operandi* in morbid conditions, their effects in over-doses, and their manner of producing death. To this should be added a knowledge of their indications and contra-indications, as well as of those combinations which increase or diminish the medicinal activity of the various drugs. Such an amount of knowledge is only to be attained by many years of study, experience, and close observation; but every step which is made towards acquiring this information will render the practitioner so much the more efficient in the discharge of the duties of his profession.

Notwithstanding the rapid strides in the science of Pathology which have been made of late years, by the aid of chemistry and the microscope, there yet remain many points involved in deep obscurity. Of this, Tetanus, Hydrophobia, and diseases of an intermittent or periodic type, may be taken as prominent examples. When we have ascertained more precisely the seat and nature of now obscure diseases, which can only be done by more extended anatomical researches, and when the *modus operandi* of medicines on the human frame is more clearly understood, we shall, doubtless, be enabled, by attacking the cause of the disease with appropriate remedies, to eradicate it at once from the system; but, in the obscurity which at present hangs over our knowledge of the history of various diseases, we must, in many instances, content ourselves with playing, if I may so express it, a secondary part, by attacking the symptoms which present themselves in the course of a disease; and he will be the most successful in his practice who does not allow the smallest of these symptoms to pass unheeded, but directs his efforts to their removal or alleviation. It is not only on the bold, prominent symptoms which powerfully arrest our notice, that attention should be bestowed, but it is upon the small, and in the patient's estimation, perhaps, insignificant symptoms, that the experienced physician will seize, and from which he will draw deductions, to serve as a guide in regulating his subsequent treatment of the case. These symptoms must be sought for, or they will never be discovered; indeed, it should be laid down as a rule in practice, that there is no such thing as a trivial symptom; even the smallest, in the estimation of the patient, may be fraught with

deep importance to the experienced eye of the intelligent practitioner. Paradoxical as it may sound, it is undoubtedly true, that in some diseases the very absence of an ordinary symptom is, of itself, sufficient to constitute one. These observations are not intended, in any degree, to detract from the vast importance of endeavouring to ascertain, by close and vigilant examination, the source and origin of a disease which we are called upon to treat. Without an accurate knowledge of these points, we shall fail to effect a radical cure, however successful our efforts may prove in alleviating, for a time, the severity of the symptoms.

A consideration of the diversified causes in which certain diseases have their origin, should teach us the necessity of minutely examining into each individual case, and of adapting our remedies to the cause, as far as that can be ascertained. It should, further, teach us to receive with great circumspection, remedies which, from time to time, are paraded in the periodicals of the day as specifics, or "almost specifics," for obscure and hitherto incurable diseases. Take Epilepsy, for example: we know that it may proceed from several causes; thus, it may arise—1, from organic disease of the nervous centres; 2, from the pressure of a portion of bone upon the brain; 3, from a vitiated state of the digestive organs; 4, from derangement of the uterine system; 5, from anæmia; 6, from plethora; 7, from moral causes, as fright, &c.; and 8, from the presence of intestinal worms. The enumeration of these various origins of a single disease shows the folly of relying on any single remedy as a means of cure. No article of the Materia Medica that we are acquainted with at present could possibly fulfil all the indications here presented. The Salts of Iron have been found useful in those forms of Epilepsy connected with anæmia; but what possible benefit can we expect from them when the disease has its origin in organic lesion of the nervous centres; and what but mischief, when it proceeds from a plethoric condition of the brain, or of the system?

The practice of treating a disease according to its name, without minutely examining into each particular case, and adapting the appropriate remedies to the several indications which present themselves, cannot be too strongly reprobated. One instance may be quoted, by way of example; namely, Electricity in Paralysis. As a general rule, we may say that Electricity is a remedy for Paralysis; but is it consequently applicable to every form and variety of that disease? Far from it. Its use is limited to those cases in which a muscle, or a set of muscles, is affected, or in which there exists a torpid or benumbed condition of the nerves themselves; and it is further limited to these states, when they are of a purely chronic character. If it be applied under

other circumstances, when organic changes have taken place in the nervous centres, or whilst inflammation exists, or when sanguineous effusion within the cerebral or spinal meninges is present, we may do actual and permanent mischief. I am more particular in insisting on the necessity and importance of this subject, as, in the body of this work, it will be seen that many remedies are recommended, on the authority of practitioners of high standing, which, if applied indiscriminately, without considering their applicability to the particular case under treatment, may prove, if not perfectly inert, perhaps injurious.

In prescribing medicines for the removal of disease, it should ever be borne in mind, that nature tends, in the majority of cases, to repair injuries inflicted upon the body, and to remove morbid or deranged conditions of the system. This instinctive healing power—the Vis Medicatrix Naturæ—is undoubtedly capable, when aided by a judicious system of hygiene, of effecting the cure of disease, particularly when it is of a mild character, without the assistance of any medicine whatever. When, consequently, a disease presents itself for treatment, in which hygienic means alone offer a fair prospect of success, they should always be employed in preference to medicines, it being the duty of the physician to restore health by the most simple means in his power.

The credit which is really due to this natural healing tendency is too often ascribed to some drug which the patient may happen to be taking at the period of improvement or recovery ; and thus many medicinal substances become endowed with reputed powers, which they really do not possess. It does not necessarily follow, because a patient recovers under a certain remedy, that recovery is due to that agent. In illustration of the fallacy of any such deductions, I may mention a case which occurred in my own practice. Having seen it mentioned in a medical periodical, that Dr. Tyler Smith had succeeded in treating a case of Amenorrhœa by the external application of the leaves of the Ricinus communis, I resolved to give the treatment a trial on the first opportunity. Shortly afterwards, a woman applied at the hospital, stating that, for a period of five months, she had been suffering in consequence of a suppression of the catamenia. Thinking this a fair case for a trial of the remedy, I directed my assistant to see that the measures, as advised by Dr. Tyler Smith, were properly carried out, and desired the woman to attend at the hospital on the following morning. She came, according to my instructions, and with a smiling face informed me, that on the preceding evening the discharge had returned, and that she felt much better. I was on the point of making a note in my case-book of the successful termination of the case, and of the means employed, when my assistant informed me that the woman had

quitted the hospital immediately after my departure on the preceding morning, and that, as she had not returned, the remedy had never been employed. Now, observe, had the leaves been applied, and the menstrual discharge appeared a few hours afterwards, which in this case it had done spontaneously, what would have been more natural than to have ascribed the benefit to the remedy employed? whilst, in fact, it was entirely due to the unassisted powers of nature. It is necessary that a medicine should uniformly, in a large number of cases, produce a certain amount of benefit, before we are warranted in attributing to it the power of curing or alleviating a disease; or, in other words, in endowing it with the character of a valuable remedy.

In connection with this subject, it may prove neither useless nor uninstructive to the younger of my readers, to offer a few remarks on the use and abuse of new medicines. Whenever a hitherto unknown remedy is brought prominently forward, the periodicals of the day overflow with accounts of the wonderful cures performed by its means. It would almost seem that the Grand Panacea of the old philosophers had at last been discovered; and if we are to believe it to be endowed with all the wonderful and varied powers which its advocates ascribe to it, we might, with one swoop, consign all the old articles of the Materia Medica to the sea of oblivion. Novelty is always pleasing, even in medicine; and the nervous and hysterical woman, who reads or is told of the wonders effected by some newly-discovered medicine, is seized with a desire to test its virtues. Her faith is increased by the report of the unexampled cures of cases similar to her own; and the medical man himself, not uninfluenced by the pleasure of novelty, without intentionally desiring to deceive, holds out a hope to the patient that a remedy has at last been discovered, which promises to be more successful than any which had previously been administered. Thus given by a sanguine medical man to a confiding patient, particularly when the latter is labouring under a nervous or hysterical affection (a class of maladies much more common than is usually imagined), it is not very surprising if improvement take place; and the supposed cure is, in its turn, added to swell the list of wonderful successes; not that the remedy, perhaps, is devoid of medicinal power in certain cases; indeed, it may be a very useful medicine, but its capability of curing all diseases, many of them essentially differing in character, should be received, to say the least of it, with extreme caution. The most striking illustration in modern medicine is, perhaps, Creasote. Soon after its discovery by Reichenbach, in 1830, it received extensive notice in England and on the Continent; it was reported to cure almost everything; and there were published accounts of above sixty diseases, in which it was stated to have acted almost as a specific! Amongst

these, were Cancer, Phthisis, and Epilepsy. From this, it is not to be understood that I am opposed to the introduction of new remedies; on the contrary, I believe that he who discovers any new means, medicinal or otherwise, for the alleviation or cure of disease, and states the same to his fellow-labourers in the field of medicine, in an open, fair, and honourable manner, deserves the best thanks of the profession and the public. I would also urge that every medicine which holds out a fair promise, either from its chemical composition, or from its known physiological effects, or which emanates from a respectable source, should receive a fair trial; but it should not be received with credulous simplicity, be employed in diseases of extremely diversified character, nor be expected to act in turns as a tonic, depressant, stimulant, sedative, and diuretic. Yet such is the way in which a new medicine is too often received; and when it fails to fulfil all the extravagant hopes which have been entertained of it, without further ceremony it is thrown aside as a failure. In this manner, I am convinced, many really useful medicines have been discarded. Being satisfied that the medicine in question possesses real medicinal virtues, it should be employed cautiously, noting with care its physiological effects, and the amount of benefit derived from it in each case. When it has succeeded, in a large number of instances, in producing uniform benefit, it may be classed as an established remedy. Nothing is more fallacious than to call a medicine a remedy for a disease, on the strength of one or two occasional successful terminations, which have taken place under its use—terminations, perhaps, due solely to Vis Medicatrix Naturæ.

All medicines act on the system either *directly* or *indirectly*. Of the first class, or those which act directly, we have examples in the Ergot of Rye, on the uterine muscular fibre; in Cantharides, on the neck of the bladder; in Belladonna, on the iris; and in caustics applied to ulcerations, &c. The second class comprises by far the larger portion of medicinal substances; one example may suffice. In Neuralgia depending upon acidity of the primæ viæ, carbonated alkalies are given to correct the acidity; the cause being removed, the effect ceases, and the alkali thus indirectly cures the neuralgic affection.

Liebig proposes to divide all medicinal substances into three great orders; *the first* (which includes metallic poisons) consists of substances which enter into chemical combination with certain parts or constituents of the body, while the vital force is insufficient to destroy the compounds thus formed. *The second division*, consisting of the essential oils, camphor, antiseptics, &c., possesses the property of impeding or retarding those kinds of transformation to which certain very complex molecules are liable—transformations which, when they take place out of the

body, are usually designated by the names of fermentation and putrefaction. *The third division* is composed of bodies, the elements of which take a direct share in the changes taking place in the animal body. When introduced into the system, they augment the energy of the vital activity of one or more organs; they excite morbid phenomena in the healthy body; all of them produce a marked effect in a comparatively small dose, and many are poisonous when administered in larger quantity. None of the substances in this class can be said to take a decided share in the nutritive process, or to be employed in the organism in the production of blood; partly, because their composition is different from that of the blood, and partly because the proportion in which they must be given to exert their influence is as nothing compared with the mass of the blood. (Liebig.*) A therapeutic arrangement of medicines, on the groundwork thus proposed by the greatest chemist of the age, would have many advantages over those now in use.

The means of discovering the medicinal properties of various substances, previous to their administration to the human subject, have in all ages attracted the serious attention of medical men. Many plans have been proposed of late years, but they are all, more or less, defective, and we are at last obliged to confess that the only sure way of ascertaining the true properties of all substances is by carefully observing their several effects upon the human economy, when, either from accident or design, they have been introduced into the system. A brief review of some of the means proposed may prove instructive.

1. *Affinity of botanical characters.*—It is undoubtedly true, that in some orders and classes of plants, a strong similarity in action and properties pervades each individual of the class; but at the same time, there are so many exceptions to be found, that it is impossible to place any confidence in it as a means of discriminating beforehand, whether or no, a certain individual, hitherto untried, possesses the same properties as others of the family to which it belongs. A few examples will suffice. The order Solanaceæ comprises Belladonna, Stramonium, and Tobacco, all powerful sedatives, and Capsicum annuum, a violent acrid stimulant; the order Liliaceæ contains the Aloe, a drastic purgative; Scilla maritima, the Squill, an expectorant and emetic; and the common Asparagus, an innocuous vegetable. In the Cinchonaceæ we find Cinchona, a tonic; and Ipecacuanha, an emetic; in the Umbelliferæ, Conium, Hemlock, a sedative; the common Cumin, a stimulant and carminative; and the Daucus Carota, or Carrot, an innocent, wholesome article of food; and lastly, in the Cucurbitaceæ we meet with the Momordica Ela-

* Animal Chemistry, 2nd Ed. p. 170.

terium, a powerful hydragogue, and the Cucumis sativa, the common Cucumber, and Cucumis Melo, the Melon, both innocent articles of diet. It should be further observed, that many articles, possessing very similar medical properties, belong to widely different orders. It is only necessary to mention Digitalis and Tobacco, both powerful depressants, and in some points resembling each other in therapeutic action; the former belongs to the order Scrophulariaceæ, the latter to the Solanaceæ.

2. Similarity in chemical composition has been suggested, as indicating a similarity in therapeutic action, but there is less reliance to be placed on this test than even on that of the botanical characters; although in some instances, as, for example, the strong mineral acids, and the fixed alkalies, where there is a close chemical relation, very analogous effects on the system are produced. But these should be regarded rather as the exceptions to than as the supporters of the rule. The following is one out of many examples of chemical affinity and dissimilar therapeutic action:—

Citric Acid, a mild refrigerant, 3 HO, C_{12} H_5 O_{11} + HO.
Gallic Acid, a powerful astringent 3 HO, C_{14} H_3 O_7 +2HO.

If we turn to some of the alkaloids, we find the fallacy of this test strikingly illustrated. The chemical formulæ of the six following alkaloids may be quoted as examples:—

Quinia .	C_{40} H_{24} N_2 O_4.	Morphia .	C_{34} H_{19} NO_6.
Strychnia.	C_{42} H_{22} N_2 O_4.	Emetina .	C_{37} H_{27} NO_{10}.
Beberia .	C_{38} H_{21} N O_6.	Aconitia .	C_{60} H_{47} NO_{14}.

Much stress has been laid on the fact that Nitrogen enters into the composition of almost every substance which powerfully affects the nervous system. However true this may be, there are numerous substances containing Nitrogen which exercise no such influence.

3. *The sensible properties of medical substances* have been suggested as a test of their therapeutic action; but no confidence whatever is to be placed on this test, as may be shown by one example. Sulphate of Magnesia, Sulphate of Zinc, and the crystals of Oxalic Acid, so closely resemble one another in external characters, that they have often been substituted by mistake, the one for the other; yet how different are their effects—the first is a purgative, the second an emetic, and the third a virulent poison.

4. *Experiments upon Animals.*—Much stress has been laid on this method of ascertaining the effects of medicines, and applying the results so obtained, by analogy, to the human frame. This

mode of procedure is, however, open to many objections, and is rendered fallacious in many instances, in consequence not only of differences of the digestive organs, but of the organization of the nervous system. Take the horse, for example: as much as six ounces of Tartar Emetic have been given to horses, without producing any remarkable or permanent derangement of the principal functions; they will take very large quantities of Arsenic with simply the effect of rendering them sleeker and fatter; and they have been known to eat as much as eight pounds of the leaves of the Atropa Belladonna, without any ill consequence. (Moiroud.) The peculiar construction of the stomach or stomachs of the cow, and other animals of the order Ruminantia, renders any deductions drawn from medicines exhibited by mouth to them very little to be relied upon; besides which, it is well-known that some animals will eat with perfect impunity substances which prove poisonous to man.

Introducing substances directly into the circulation, by injecting them into the blood-vessels, has been another means proposed for ascertaining their medicinal effects. Although many useful and valuable physiological facts may be obtained in this manner, the procedure is far from being free from objections; indeed, deductions thus drawn should be received with extreme caution. The very fact of cutting down on a large or deep-seated vessel, and the consequent loss of blood, must influence the result in a therapeutic point of view, setting aside the mechanical effect produced on the circulation and on the nervous system, by the liquid employed as a vehicle for the medicine. The force with which it is injected, and the quantity of fluid used, would also materially influence the result.

Other methods of attaining a knowledge of the therapeutic action of remedies have been proposed; but it would answer no useful or practical end to enter into their consideration.

On the Art of Prescribing Medicines.—Every medical man should pay strict attention to the proper and most efficient manner of prescribing medicines. It is a point intimately connected with his success as a practitioner, and some observations on this subject, so deserving our best attention, cannot be considered otherwise than useful and necessary in a work like the present, having, for its primary object, practical utility.

A prescription is, according to ancient usage, generally described as composed of four constituents, or rather as divided into four parts:—1, *the basis*, the principal or most active ingredient; 2, *the adjuvans*, intended to promote the action of the former; 3, *the corrigens*, or that designed to correct or modify the operation of the basis; and 4, *the excipient or vehicle*, which is the substance giving to the former ingredients consistence and form. The following formulæ may serve as examples:—

℞ Extracti Colocynthidis Co. gr. xxx. . Basis.
Pil. Hydrargyri . . gr. x. . . Adjuvans.
Extracti Hyoscyami . . gr. v. . . Corrigens.
Syrupi q. s. M. . . . . Vehicle.
Ft. Pil. xij.

℞ Vini Colchici, fl. drs. ij. . . . . Basis.
Sp. Etheris Nitrosi, fl. drm. jss. . . Adjuvans.
Tinct. Hyoscyami, fl. drm. j. . . . Corrigens.
Aquæ, fl. oz. vss., M. . . . . Vehicle.
Ft. Mist.

It is not, however, necessary that every prescription should be formed on this model; indeed, the fewer the ingredients in a formula the better; it cannot well be too simple. Complexity of prescription should always be avoided; it is generally regarded, with much justice, as a sign of ignorance on the part of the prescriber. It is necessary that a prescription should always be written in a legible hand; the symbols denoting the quantities distinctly given: the exact quantity for each dose, the periods for its repetition, and any other directions, should be given at full length, and in the plainest possible language. To this should be added a piece of advice from one of the most practical men of his day, the late Dr. A. T. Thompson, that no prescription should pass from the hand of the prescriber without being deliberately read over, and its correctness ascertained.

The circumstances which modify the action of medicines are very numerous. This modification or alteration depends, in some instances, on a peculiarity on the part of the patient; in others, on the character, form, or period of the disease, in which the medicine is administered, on the period of the day at which it is given, on the combination of medicines employed, on the proper regulation of the dose, &c. These, and other points connected with the efficient operation of medicines, merit the attention of every practical man.

Modifying circumstances on the part of the patient:—

1. *Idiosyncrasy.*—Many persons are peculiarly susceptible to the action of certain medicines; no reason can be assigned for this extreme susceptibility, but of the fact of its existence in some individuals there can be entertained no reasonable doubt. A few grains of a mercurial salt, only sufficient to act, in ordinary cases, as a very slight stimulant of the biliary secretion, will, when an idiosyncrasy exists with respect to this medicine, produce the most violent salivation, and other untoward effects. Under such circumstances, three five-grain doses of blue pill, one being administered every night, have proved fatal: two grains of Calomel have caused ulceration, exfoliation of the jaw, and death; and

the external application of three drachms of mercurial ointment has destroyed life in eight days. (Christison.) Other medicines act in a similar manner on certain constitutions. Opium, even in the smallest dose, will produce furious delirium and extreme disturbance of the cerebral and nervous functions; the very smell of Ipecacuanha will, in some constitutions, cause the most distressing sense of suffocation; Copaiba, inflammation of the kidneys; and Squills and Oil of Turpentine, eruptions on the skin. It should always be ascertained, if possible, previous to the exhibition of these remedies, particularly in the cases of Mercury and Opium, if any idiosyncrasy with respect to them exists; and if so, the obnoxious medicine should in every form be carefully avoided.

2. *Sex.*—Women, from their more delicate organization and greater nervous susceptibility, seldom bear the same doses as men. Those which will produce only a mild and beneficial effect upon the adult male, will, in the majority of cases, produce a prejudicially violent one upon an adult female. There are, of course, many exceptions to this, but as a general rule it holds good. Great care is necessary in the administration of irritating purgatives, particularly of Aloes, during the periods of pregnancy and menstruation; of Sulphuric Acid during lactation, as it renders the milk disagreeable and griping to the infant; and of Mercury in Anæmic Chlorosis.

3. *Age.*—In old age and in childhood, the same doses are not generally so well borne as in youth and manhood; and much nicety is sometimes necessary in regulating the dose. Several exceptions, however, present themselves; thus, in childhood and in old age, much larger quantities of Mercury are necessary to induce salivation than in manhood; indeed, Dr. Clarke states that, in a practice of twenty years, he never saw a child truly salivated: an observation corroborated by the experience of others. Prof. Graves ascribes the difficulty of inducing salivation in children and in old persons to the undeveloped state of the salivary glands in the former, and to their atrophied state in the latter. On the other hand, in infancy and childhood, Opium in every form is a remedy that requires the utmost caution in its administration. Two and a half drops of Laudanum have destroyed an infant three days old; three drops a strong child of fourteen months; and four drops a child of a few weeks old. (Christison.) Excepting under urgent circumstances, an opiate should never be administered to an infant; and when imperatively called for, its effects should be carefully watched. In infancy and childhood, blisters allowed to remain long in contact with the skin are apt to induce ulceration and gangrene; and leeches, on account of the thinness of the skin, and the vascularity of the subjacent tissues, draw more blood, and consequently make a more decided

impression on the system in an infant, than a proportionate number would produce in an adult.

The following complete scale of doses, in use at Guy's Hospital, is quoted by Dr. Pereira:—

AGE.	MAXIMUM DOSE.		
	The Apothecaries' Ounce, 480 grains (℥j).	The Apothecaries' Drachm, 60 grains. (ʒj).	The Apothecaries' Scruple, 20 grains. (℈j).
Months.			
1 .	ʒss. (gr. xxx.)	gr. iij.	gr. j.
3 .	—	,, iv.	—
6 .	℈ij. (gr. xl.)	,, vj.	,, ij.
9 .	—	,, vij.	—
Years.		,,	
1 .	ʒj. (gr. lx)	,, viij.	,, iij.
2 .	ʒiss. (gr. xc.)	,, x.	,, iv.
3 .	ʒiss. (gr. xc.)	,, xii.	
4 .	ʒij. (gr. cxx.)	,, xv.	,, v.
5 .	ʒiiss. (gr. cl.)	,, xviii.	,, vj.
6 .	ʒiij. (gr. clxxx.)	℈j. (gr. xx.)	,, vij.
7 .	ʒiiiss. (gr. ccx)	gr. xxv.	,, viij.
8 .	℥ss. (gr. ccxl.)	ʒss. (gr. xxx.)	,, x.
10 .	ʒivss. (gr. cclxx.)	gr. xxxv.	,, xij.
12 .	ʒv. (gr. ccc.)	℈ij. (gr. xl.)	,, xiv.
13 .	ʒvss. (gr. cccxxx.)	—	,, xv.
15 .	ʒvj. (gr. ccclx.)	gr. xlv.	,, xvj.
18 .	ʒviss. (gr. cccxc.)	—	,, xvij.
20 .	ʒvij. (gr. ccccxx.)	gr. l.	,, xviij.
21 to 45 .	℥j. (gr. ccccIxxx)	ʒj. (gr. lx.)	℈j. (gr. xx.)
50 .	ʒvij. (gr. ccccxx.)	gr. l.	gr. xviij.
60 to 70 .	ʒvj. (gr. ccclx.)	gr. xlv.	,, xvj.
80 to 90 .	ʒv. (gr. ccc.)	℈ij. (gr. xl.)	,, xiv.
100 .	℥ss. (gr. ccxl.)	ʒss. (gr. xxx.)	,, x.

4. *Temperament and Diathesis* influence the operation of medicinal agents. The sanguine and sanguineo-nervous temperaments bear the loss of blood and other antiphlogistic treatment much better than the nervous and phlegmatic; but, on the

other hand, stimulants which would induce only a pleasing degree of excitement or stimulus in the latter, would probably act with extreme violence in the former. Under all circumstances, stimulants should be given with caution to persons of a sanguine temperament. Again, in the phlegmatic, where there often exists a great torpor of the bowels and of the system generally, the more stimulant and irritating cathartics, as Aloes, Scammony, Gamboge, &c., are indicated, and often require to be repeated in such doses as would, if administered to a person of the sanguine temperament, produce an alarming degree of hypercatharsis and debility. Antispasmodics are more strikingly beneficial in the nervous than in the sanguine temperament. In the scrofulous, scorbutic, and gouty diatheses, long courses of depressing treatment, particularly the loss of blood and the administration of mercurials, appear to be highly prejudicial; whilst the same line of treatment is not only necessary, but beneficial, in those diseases occurring in persons of the inflammatory diathesis.

5. *Habits and mode of life* likewise exercise a powerful influence. The inhabitants of large, over-crowded cities, those who work in close, ill-ventilated manufactories, and at the same time have barely a sufficiency of food, and even that of an inferior description, those who habituate themselves to the use of large quantities of spirituous liquors, equally with those who, having ample means at their command, indulge in all kinds of luxury and sensuality, cannot bear the same active treatment as the robust resident in the rural districts, whose avocations are chiefly outdoor, who does not addict himself to the vice of drunkenness, nor indulge in vicious or luxurious habits. The same active treatment necessary to effect the cure of an acute disease in the latter instance, would probably only tend to cause a fatal termination in the persons forming the first class.

It is extraordinary the degree of tolerance which habit establishes, even with respect to the most poisonous substances: thus, Mustapha Shatoor, an opium-eater in Smyrna, took three drachms of crude opium daily.* Sulcyman Yeyen, of Constantinople, is said (if it may be credited) to have taken Corrosive Sublimate daily, for thirty years. His usual daily dose was about a drachm; † and Mr. Baker,‡ a surgeon on the Bengal establishment, mentions that in Northern India, some of the inhabitants, beginning with one-eighth of a grain of Nux Vomica, gradually increase the dose until twenty grains, or an entire nut, is taken daily. Of course, in these instances, the peculiar article given in

* Philosophical Transactions, vol. xix. p. 289.
† Thornton's Present State of Turkey, Lond., 1807, p. 295.
‡ Bengal Dispensatory, p. 439.

ordinary therapeutic doses would be of no avail to individuals habituated to its use. To produce an ordinary effect, under such circumstances, these articles must be given in extraordinary doses; and it should be remarked, that whenever a person accustomed for a long period to a certain amount of stimulus, is suddenly deprived of the article in which he indulges, he is apt to become alarmingly depressed; and in order to sustain the powers of life, it is necessary to continue the accustomed stimulus. Whilst in charge of the jail at Mergui, I was often obliged to give to Chinese prisoners large doses of Opium, not only to prevent their falling sick, but to enable them to perform their daily tasks. When I first assumed medical charge, I attempted, in several instances, to break them of the habit, by gradually decreasing the accustomed quantity; but in almost every case, such an alarming degree of nervous depression supervened, that I was unwillingly obliged to have recourse once more to the use of Opium in the accustomed dose. It is nearly the same with alcoholic drinks; every one is aware of the necessity of continued stimulus, in reduced quantities, in the treatment of Delirium Tremens. It is always a matter of importance, therefore, to ascertain, as far as possible, the previous habits of a patient, in order to enable the practitioner properly to regulate the treatment of the case. (See also some most judicious remarks of Dr. Prout, on the habitual use of mercurial purgatives, Art. Hydrargyrum.)

6. *Race*, also, doubtless exercises an influence. A striking illustration of this may be found in the natives of Hindostan. Their power of bearing the action of evacuants, particularly of blood-letting, is very limited; and the same vigorous antiphlogistic treatment which may be necessary to save the life of an Englishman, in any acute disease—in dysentery for example—would, if followed out in the Hindoo or Mussulman Sepoy, most probably so greatly exhaust the nervous energy, that a fatal result would follow. I believe that there are very few medical officers in India, who have employed blood-letting to any extent on the natives, who have not had cause, subsequently, to regret having had recourse to it.

7. *Passions and Affections of the Mind* have a great influence in modifying the action of medicines, particularly that of narcotics. A dose of Opium, which, under ordinary circumstances, would produce profound narcotism, would exercise no such influence if administered to a person labouring under any great mental excitement, especially anger or grief. Hope and confidence exercise a most powerfully beneficial action; and faith either in a particular medicine, or in a certain practitioner, in some instances really appears to remove mountains of apparent difficulties. How else can we account for the miraculous cures (?)

effected by the bread pills and coloured water, sold under some fine-sounding *soubriquet?*

Other circumstances which modify the action of Medicines:—

1. *Combination.*—A judicious combination of drugs is often more effectual in its operation than a single medicine, however well selected. This is particularly the case with diuretics and anthelmintics; and it is an object of considerable importance, that the practitioner should make himself well acquainted with those several combinations which either increase or diminish the action of certain remedies. Most of these combinations will be mentioned in the following pages, under their respective headings; in this place, therefore, a few examples will suffice to show the influence which this circumstance exercises. Digitalis frequently fails to act as a diuretic, until combined with the Sesquicarbonate of Ammonia, or with Squills. Jalap, Colocynth, Scammony, &c., are rendered more efficiently purgative by the addition of Calomel; and diaphoresis is more certainly induced by a combination of Ipecacuanha and Opium, than by either medicine singly. On the other hand, the purgative action of Aloes is rendered milder by the addition of Ipecacuanha; less griping by Ext. Hyoscyami; whilst it is modified by Soap, the aromatic oils, and by the alkalies. In some spasmodic affections, the operation of a cathartic is promoted by a combination with Opium; and lastly, this drug is stated to render almost inert the action of the Iodide of Potassium. In forming a combination of medicines, great care should be taken to avoid combining drugs whose action is directly opposed to each other; a diuretic and a diaphoretic for example, in one mixture, are as a rule no less incompatible therapeutically than the Nitrate of Silver and a solution of the chlorides are chemically. Do not attempt to fulfil too many indications at one time, or it is not improbable that the remedies may antagonize each other, and render your treatment perfectly inert.

2. *Combination of Medicines chemically incompatible*—As a general rule, it is inadvisable to prescribe in the same formula, ingredients which are chemically incompatible, unless the resulting compound be the one which the practitioner wishes to administer; thus, if the Citrate of Potash is to be given, it may effectually be done by giving, in one draught, Citric Acid and the Bicarbonate of Potash in solution; these mutually decompose each other; the Carbonic Acid is evolved, and the Citrate of Potash is obtained. It does not necessarily follow that, because the ingredients are chemically incompatible, the resulting compound is rendered inert; on the contrary, it may often happen that it is much more violent in its operation than either of the ingredients used in its formation. Here we have to call Chemistry to our aid, in order thoroughly to understand the changes which

take place, and to ascertain what the compound resulting from the mixture is. Having ascertained this point, the next thing is to find out with what medicinal properties it is endowed. Many unchemical combinations are highly useful and valuable, *e. g. yellow wash*, a compound resulting from a mixture of Corrosive Sublimate and Aqua Calcis; *black wash*, that of Calomel and Aqua Calcis; and the *Mistura Ferri Co.*, or *Griffith's Mixture*, in which the Carbonate of Potash and the Sulphate of Iron are mutually decomposed, a simple Carbonate of the Protoxide of Iron and the Sulphate of Potash resulting. But of all unchemical combinations, perhaps the most signally useful is that of Opium and the Acetate of Lead. These agents react chemically on each other, and produce the Acetate of Morphia, and Meconate of Lead; yet experience proves the combination to be one of the highest value in hæmorrhages and other diseases.

3. *The regulation of the dose.*—Almost every article in the Materia Medica operates differently when given in a small and in a large dose. Tartar Emetic, for example, in doses of from $\frac{1}{12}$ to $\frac{1}{8}$ of a grain, acts as a diaphoretic and expectorant; in doses of from $\frac{1}{4}$ to $\frac{1}{2}$ of a grain, as a nauseant; and if carried to the extent of two or three grains, it proves powerfully emetic. A very similar series of effects is produced by graduated doses of Ipecacuanha. The neutral salts are aperient in large doses, and diuretic in small ones, Opium is a stimulant in small, and a narcotic in large doses; and the Oil of Turpentine, in doses of fl. drm. j.—fl. drs. ij. acts as an acrid irritant of the kidneys and genito-urinary organs, whilst in doses of fl. oz. j. especially if combined with Castor Oil, it operates freely on the bowels, without producing any renal or vesical irritation. These are but a few examples out of many which might be quoted; but it may be observed generally, that most of the medicinal substances whose operation is mild and beneficial in small doses, may be converted into powerful poisons by being administered in large quantities.

There is a source of error in regulating the doses of fluid medicines, to which, unfortunately, but little attention is paid. I allude to the differences between the minim and the gutta or drop. They are too often considered as identical, both being regarded as the $\frac{1}{60}$th part of a drachm. A reference to the following list will show how erroneous any such conclusion must be:—

Table of the number of Drops of different liquids equivalent to a Fluid Drachm, by Mr. Durand, of Philadelphia.*

	Drops.
Acid, Acetic, Crystallizable	120
Acid, Hydrocyanic (Medical)	45
Acid, Hydrochloric	54
,, Nitric	84
,, Nitric, Dilute (1 to 7)	51
Acid, Sulphuric	90
,, Sulphuric, Dilute (1 to 7)	51
Alcohol (Rectified Spirit)	138
,, Dilute (Proof Spirit)	120
Arsenite of Potassa (Sol. of)	57
Ether, Sulphuric	150
Oils of Aniseed, Cinnamon, Cloves, Peppermint, Almonds, Olives	120
Tinctures of Assafœtida, Opium, Digitalis, and Guaiacum	120
T. Ferri Sesquichloridi	132
Vinegar, Distilled	78
,, of Colchicum, Opium, and Squills	78
Water, Distilled	45
,, of Ammonia (Strong)	54
,, ,, (Weak)	45
Wine (Teneriffe)	78
,, Antimonial	72
,, of Colchicum	75
,, of Opium	78

The minim, as affording a certain standard of measurement, should always be employed in preference to the drop; the latter, as is shown by the preceding table, being of extremely different dimensions.

The dose of any given medicine, particularly of narcotics and purgatives, should be regulated rather in accordance with the effect it produces in each individual case, than from published or written directions on the subject; not that these are to be disregarded, but they should be looked upon rather as guides to the dose generally required than as applicable to every instance. It is impossible, in many instances, to lay down positive rules as to the quantity of a certain medicine to be exhibited. Take cancer of the uterus, for example: here Opium is the sheet-anchor as a palliative; and the dose which at first will afford relief and induce sleep, soon fails to produce these effects, and the quantity requires to be increased almost daily, until enormous doses are required to give the same amount of ease and sleep which were originally produced by comparatively small ones. Iodine, in scrofulous cases, is another example. The tolerance of this medicine varies much in certain individuals, without any peculiar idiosyncrasy existing with respect to it; and a dose which will act beneficially in one case, will be productive of great gastric irritation, &c., in another. The same remark applies to Mercury, and many other medicines.

* Quoted in Dunglison's Medical Dictionary.

The following is another circumstance, by no means an uncommon one, with several medicines, which requires the notice of the practitioner, in the regulation of the dose. A scrofulous patient, for example, comes under treatment, and Iodine is administered; for a time, the patient improves rapidly, ulcers heal, glandular enlargements diminish in size, the appetite increases, and the constitution gains tone and vigour. Suddenly, however, from no apparent cause, the reparative process ceases, and the patient, perhaps, retrogrades. Under such circumstances, the dose requires either to be greatly decreased, or, what is still better, the medicine should be discontinued for a few days or weeks, when it may be resumed with the original benefit.

4. *The character, period, and form of disease*, influence the operation of medicines to a very great degree; and the medical man who treats a disease according to its name, without considering the individual circumstances of each case which comes under his treatment, will find his measures either prejudicially violent, or perfectly inoperative. We know that blood-letting, as a general rule, is a remedy for inflammation; but the practitioner who, on the strength of the fact that he has an inflammation to treat, indiscriminately employs this evacuant, without taking into account all the concomitant circumstances, is, to call it by its mildest name, guilty of a great indiscretion. If, for instance, the disease present any typhoid characters; if it occur in a person of a strongly-marked scrofulous diathesis, or in a scorbutic patient; if for several days it has been allowed to progress unchecked, blood-letting, which, under other circumstances, might have been highly beneficial, would most probably prove in the highest degree prejudicial. If this be true in individuals, no less so is it in epidemics. In the inflammatory fevers which visited Great Britain previous to the year 1820, blood-letting appears to have exercised a most beneficial influence; but, observes Dr. Christison,* in the fevers which have prevailed for some years past, the salutary effects of blood-letting have ceased to be presented. It has been repeatedly remarked, he adds, that for the last fifteen years continued fever has been assuming more and more of the typhoid type, over the whole country, but especially in Edinburgh; a corresponding change has taken place in the effects of remedies, and of blood-letting more than any other. It is also worthy of remark, that in the principal epidemics which have prevailed of late years, a remedy which is highly beneficial at one period appears to possess no efficacy at another. From the history of these epidemics, it appears evident that those persons who are attacked by the disease when it is beginning to decline, recover more rapidly, and in greater proportion, than those who were attacked when the

* Library of Medicine, vol. i. p. 174.

disease first made its appearance, or whilst it was most prevalent. It almost appears that the violence of the disease exhausts itself by the virulence of its action; however this may be, it seems certain that many remedies will prove successful at the wane of an epidemic, which have proved utterly incapable of controlling the disease at its outset or its acme. If this be so, and the history of epidemics appears to warrant the correctness of the statement, it is evident that the period of an epidemic exercises a powerful influence on the action of medicines, the point which it is my object here to illustrate. In individual diseases, this influence is often very marked; numerous examples are met with in daily practice; blisters, for example, are most beneficial in acute inflammation after the violence of the symptoms has been subdued by other remedial means. Opium, in the same disease, is especially useful, generally, after depletion. Stimulant diuretics, which are hurtful in Albuminuria whilst acute symptoms are present, may be given with advantage when the disease is assuming a chronic form. Stimulant diaphoretics are inadmissible in acute febrile attacks, but beneficial in the advanced stages; and, lastly, injections into the urethra, which will prove of the highest service in the first and third stages of Gonorrhœa, would cause stricture, orchitis, inflammation of the bladder, &c., if employed in the second stage, or whilst the inflammatory symptoms run high.

5. *Certain morbid conditions of the body, or the intensity of the disease*, must, of necessity, greatly modify the action of the remedy. Illustrations of this are constantly met with in practice. It is well known, for instance, that in severe spasmodic affections, large and repeated doses of Opium are borne without a single ill consequence; doses which, if administered under ordinary circumstances, or in milder cases, would almost prove fatal. Again, if we look at Mercury in suppurative inflammation of the liver, or in yellow fever, we find a quantity of Mercury that is sufficient, in ordinary cases, to salivate a dozen men, produces no perceptible effect whatever. The tolerance of bleeding in some forms of acute inflammation, of Tartar Emetic in Pneumonia, and of Calomel in Cholera, may also be mentioned as examples; but perhaps the disease which exhibits the greatest tolerance of medicines is Tetanus. In a case quoted by Dr. Bennett,* a patient, labouring under this disease, took, in the course of ten days, no less than four pounds, seven ounces, and six drachms of Laudanum, besides six ounces, four drachms, and 45 grains of solid Opium. We are not informed whether the patient recovered. Stimulants have also been given to an almost incredible extent, without producing any ill consequences, or even a marked effect on the system; thus Dr. Currie† mentions a case of Tetanus, in

* Library of Medicine, vol. v. p. 243. † Medical Reports, vol. i. p. 148.

which the patient took 140 bottles of Madeira in less than a month; the daily quantity being four or five bottles of wine, besides brandy, ale, two gallons of strong broth, and two drachms and a half of Laudanum. The patient recovered. Purgatives appear to make even less impression. In a case recorded by Dr. Briggs,* the patient took, in 48 hours, 210 grains of Scammony, 89 grains of Gamboge, an ounce and four scruples of Jalap, two pints and a half of infusion of Senna, and eight grains of Calomel! Decided benefit is stated to have followed this treatment.

6. *A deranged condition of any of the principal functions of the body* modifies and interferes with the operation of medicines. This is peculiarly observable in the digestive organs; when these are the seat of functional derangement or organic lesion, medicines whose operation on the animal economy is mild and beneficial otherwise, may be rendered either prejudicially irritant or perfectly inert. Under these circumstances, Quinine ceases to act as an antiperiodic, Digitalis as a diuretic, and tonics, instead of imparting tone and vigour, are converted into distressing irritants.

7. *The influence of diet* on the action of medicines is very considerable. The medical man who contents himself with merely ordering certain medicines, and who does not at the same time regulate the patient's diet, neglects to avail himself of a most valuable auxiliary, and may be allowing the presence of an antagonist, which, in all probability, will counteract all the benefit that might otherwise be reasonably expected to result from his prescriptions. Who, for instance, can expect benefit from antiphlogistic medicines, so long as a full animal diet, with wine and stimulants, is simultaneously pursued? and can we be surprised at the failure of a course of tonics, if only weak slops and an antiphlogistic diet be followed? A stimulant diet notoriously interferes with the action of Mercury. Salt meat, and other substances taken with much salt, are likely to retard the operation of the Nitrate of Silver; whilst in many cases Iodine is rendered almost inert, by being conjoined with a diet of which amylaceous substances form a large part. The diet should in every case be regulated so as to promote, as far as possible, the operation of the medicines which are being employed at the time. Many instances are on record, in which well-directed medical efforts have been frustrated, by the patient indulging in food or drink without the sanction of his medical adviser. Recamier mentions, that in the treatment of cancer, he found Conium exercised a very powerful influence, if the patient were placed on a very low vegetable diet, but that its action was hardly observable whilst a full animal diet was taken. May not a forgetfulness of this fact be one of the causes why this drug,

* Edin. Med. Surg. Journal, vol. v. p 141.

formerly held in high esteem, so frequently fails in cancerous cases at the present day? Another example of the influence of diet is mentioned by Dr. Rust. Having observed the great success with which his friend, Dr. Von Zellenberg, treated Syphilis with Hydrochloric Acid, he resolved to make a trial of its virtues. He accordingly employed it in several instances, and, to his astonishment, it failed to produce the slightest benefit in a single patient. On investigating the subject more closely, he found that Von Zellenberg kept his patients on a very low scale of diet, whilst he had omitted to place any restriction of the kind. He followed his friend in this particular also, and, like him, was successful in his practice. I may add an example which occurred in my own experience. In my first trials with the Sulphate of Iron in Intermittents, I administered it only to the Burmese, and the benefit which attended its use was, in the majority of cases, very marked and unequivocal. I administered it subsequently to the Hindoo and Mussulman Sepoys, and, to my dismay, it failed to produce any benefit. On investigating the cause of this, I found that, whilst the Burmese rigorously abstain from vegetable acids during an attack of fever, the Sepoys indulged in them to a great extent. Having prohibited the use of acids by the latter, I found that the Sulphate of Iron exercised the same influence on them as it had previously done on the Burmese. These instances, without adducing others, are sufficiently illustrative of the importance of regulating the diet of the patient. The medical man, moreover, should not be content with simply giving directions on the subject of diet, but he should see that his instructions are followed out.

8. *The period of the day at which medicines are administered* modifies their operation. Narcotics operate most favourably if given an hour or two before the time at which the patient usually retires to rest, sufficient time being allowed for the stage of excitement to pass over. Emetics are best given towards night, so that the sleep which usually supervenes on their use may be the more readily indulged. Diaphoretics are, likewise, administered with the greatest advantage at the same period, the circumstances of warm bed-clothes, a horizontal position, and an equable temperature, favouring their operation. On the other hand, diuretics are best given during the day, when the surface of the body can be kept moderately cool. Aloes and the resinous cathartics, which remain a long time in the intestines previous to their action, are best given at bedtime; their solution will then be completed, and their operation will commence on the following morning: but the other cathartics, as the neutral salts, Senna, Castor Oil, &c., whose operation is speedy, should be given early in the morning, on an empty stomach. As a general rule, cathartics should not be given so as to interfere with the patient's

regular rest. The administration of medicines with reference to the periods of taking food, also requires the attention of the practitioner: thus. Quinine acts most powerfully if given on an empty stomach; Arsenic, most beneficially if given directly after a full meal; antacids, if taken four or five hours after a full meal, when we may suppose the digestive process to be nearly completed; Iodine should not be given immediately after meals of arrow-root, sago, &c., or of substances abounding with starchy matters; and the operation of an aperient is materially interfered with, by being taken on a full stomach. If copious draughts of diluents be taken soon after a dose of Dover's Powder, or of any of the preparations of Ipecacuanha, or after fractional doses of an antimonial, vomiting is likely to be produced, and the medicine to be ejected, without performing its proper office, unless, indeed, it has been given with a view of acting as an emetic.

9. *Light, Air, and Exercise* influence the action of medicines more than is generally allowed. They very sensibly promote the action of tonics and alteratives, particularly that of Iron and of Iodine; indeed, taken alone they tend in no inconsiderable degree to invigorate the constitution, to give tone to the digestive organs, and energy to the nervous system. Confinement in close, dark, ill-ventilated apartments, effectually counteracts any beneficial influence which might otherwise be derived from tonics, and renders the patient languid, sallow, unhealthy, scorbutic, or dropsical. On this point, Dr. Ranking * observes that scrofulous patients who are not able to walk, should sit in the open air; anything is better than to pass the chief part of the day in the confined air of a sick-room, or hospital ward. "This is a point," he adds, "which I would strongly urge upon the attention of all who have the care of scrofulous cases, as I feel convinced that, in many instances, the failure of Iodine is due to the neglect of insisting, at the same time, upon the patient taking exercise in the open air." This opinion few medical men will be inclined to dispute. Exercise, without doubt, retards the operation of narcotics, even when taken in poisonous doses. An illustrative case is related in Lockhart's "Life of Sir Walter Scott."† A young farmer swallowed a quantity of Laudanum in mistake for some other medicine. While all around him were stupid with fear, he rose, saddled his horse, and rode to the doctor's residence, six or seven miles, and did not feel the operation of the drug until he had alighted, when it instantly began to operate. He perfectly recovered. Exposure to the sun is said to hasten the production of that peculiar blueness of the skin, which occasionally appears during a prolonged course of the Nitrate of Silver. The action of diuretics is retarded by exercise in the open air,

* Translation of Lugol on Scrofula, p. 242. † Vol. v. p. 186.

whilst that of Digitalis is frequently not observed under the same circumstances.

10. *Season* is also a modifying agent. Some diseases, independent of all remedial measures, improve at certain seasons, and retrograde at others. We have a good example of this in scrofulous affections: in the spring this disease in every form is aggravated; during the latter part of summer and in autumn, improvements take place rapidly and uniformly; whilst during the winter it either remains stationary or retrogrades. Now, it is evident that any remedial measures in this disease must be greatly influenced by the season at which they are employed; or, in other words, by the tendency which the disease exhibits to improve or retrograde at particular periods. I believe that much of the efficacy which has been ascribed to sea-bathing in this disease is in reality due to the fact that it is usually employed at those seasons, summer and autumn, when the disease spontaneously improves. Season also influences the operation of medicines in another way; thus Dr. T. Smith observes that the Oil of Turpentine ought never to be given alone, in large doses, during the winter or in cold damp weather; because it then, like other hydrocarbons, tends to supply fuel for the evolution of animal heat, rather than to exert any therapeutic properties. Moreover, in winter, cerebral congestion may supervene, in summer intractable diarrhœa, if it be given in very large doses. Another example will suffice. Dr. Copland states that in the treatment of Bronchocele with Iodine, he has observed that drug, if continued during cold weather, produce pains in the limbs and joints resembling rheumatism, but that these disappeared when the weather became warm.

11. *The form in which a medicine is administered* influences, in many instances, its operation. When it is desired to produce a speedy effect, the liquid form is generally preferable: thus, the action of Quinine is rendered not only more speedy, but more effectual, if administered in solution than if given in substance. The same remark applies to Morphia, and to most of the alkaloids. Tannin, when intended to influence the stomach or bowels, is suitably exhibited in the form of pill; but if it be designed to enter into the circulation, or to act quickly at a distance from the stomach on some internal part, the form of solution should be employed. Digitalis, when given in the form of tincture, acts as a direct sedative on the heart and circulatory system; if given in infusion, it acts as a diuretic. Decoction is inadmissible as a form for exhibiting Ipecacuanha, Senna, and some other medicines, their active properties being dissipated by boiling. There are, however, several medicines which, from their insolubility, cannot be given in the liquid form; Calomel, and the Peroxide of Iron, for example: these are necessarily given either in

the form of pill or powder. In using the pillular form, we may, in the majority of cases, advantageously add soap to the mass, as it tends materially to hasten its solution in the intestines, and thereby to quicken its operations. It also renders the action of purgatives milder and less irritating. Powders are best given in syrup, honey, treacle, &c. When they are of an insoluble character, as the Peroxide of Iron, &c., and are continued daily. for any length of time, an aperient should occasionally be given, to obviate their accumulation in the intestines.

12. *The purity of the medicine* employed should engage the earnest attention of the practitioner; otherwise his best efforts may prove not only unavailing, but perhaps injurious.

13. *Disguising the taste of nauseous medicines* is often a matter for consideration, particularly in the case of children and delicate women. Castor Oil, one of the most useful aperients in the Materia Medica, is often rendered inadmissible on account of its taste; and it is, consequently, important to discover some means by which it may be disguised, without impairing its medicinal activity. This remark applies even more strongly to Cod-Liver Oil. Strong coffee, hot milk, or lemon syrup, will answer in a degree; or the medicine may be made into an emulsion with yolk of egg, sweetened with syrup, and coloured with Tinct. Cardam. Co.; but all these plans are inferior to the simple one of chewing a piece of lemon or orange-peel, or a few cloves, or any aromatic substance, immediately previous to swallowing the medicine. I know of no way so effectual as this. The taste of Senna may be concealed by sweetening the infusion, adding milk, and drinking as ordinary tea, which, when thus prepared, it much resembles. The taste of Quinine is concealed by Tannin; Aloes, by Liquorice; and the Sulphate of Magnesia, by the compound infusion of Roses. Syrups are generally agreeable to children, and may be used for disguising unpleasant taste. In order to obviate the taste, some medicines may be given in the form of effervescing draughts, the Carbonic Acid, which is set free, tending, not a little, to enable the stomach to retain the medicine. Nauseous medicines, as Copaiba, are sometimes advantageously given in the pillular form, or in gelatinous capsules, or enveloped in wafer-paper.

MANUAL

OF

PRACTICAL THERAPEUTICS.

PART FIRST.

ARTICLES OF THE MATERIA MEDICA.

ABSINTHIUM. See ARTEMESIA ABSINTHIUM.

1. ACACIA. Acaciæ Gummi. Gum Acacia. Gum Arabic. A gummy exudation from the stem of Acacia Vera, A. Arabica, and other allied species. *Nat. Ord.* Leguminosæ. *Linn. Syst.* Polygamia Monœcia. *Source,* Various—Cordofan, Senegal, Arabia, Cape of Good Hope, the Persian Gulf, Bombay, and New Holland.

Med. Prop. and Action. Demulcent. In moderate quantities it does not produce any sensible effect on the system; indeed, it is stated to be used as food by the natives of Senegal; six ounces being considered sufficient for the daily support of an adult. It forms an excellent adjunct to other demulcents in pulmonary and genito-urinary affections. The Mucilage is the best form for internal use. Prof. Graham* considers that the Gum may be employed as an article of diet for diabetic patients, without risk of increasing the quantity of saccharine matter discharged in their urine. This is not what would *d priori* have been expected, but it is nevertheless a valuable fact to be aware of.

Prep. Mucilago Acaciæ (Gum Arabic oz. iv.; Distilled Water fl. oz. vj.) fl. drm. j —fl. oz. j.

Dose of Gum Arabic gr. xxx.—gr. lx. or *ad libitum.*

Incompatibles. The strong Mineral Acids; Alcohol; Ether; Sub-Acetate of Lead; Tinct. Ferri Sesquichlor., and other Tinctures.

* Quoted by Ballard and Garrod, Mat. Med. p. 26.

2. *Therapeutic Uses. In Coughs* much relief is often experienced from allowing a piece of gum to dissolve slowly in the mouth. It is particularly useful in allaying the irritation of the throat which excites *Cough in Phthisis.* Dr. A. T. Thompson* advises the following formula:—℞ Mucilag. Acaciæ f ℥j.; Ol. Amygd., Syr. Papav. Alb. āā f ℥ss.; Aquæ f ℥iv.; Acid. Citrici, q. s. ad gratam acidulat. M. Dose, a dessert-spoonful repeated frequently.

3. *In Ardor Urinæ, Calculous affections, and in Diarrhœa,* the mucilage, combined with narcotics or demulcents, proves of great service.

4. *In Hæmorrhage,* the local application of finely-powdered gum is often effectual in arresting the flow of blood. A case of severe *Epistaxis,* successfully treated by finely-powdered gum, blown into the nostril, is reported in Hufeland's Journal.† The application of powdered gum, however, in these cases is not new. It was adopted by Heister in 1713.‡

5. *In Burns and Scalds,* Mr. Rhind,§ of Edinburgh, advises applying a thick solution of Gum Arabic over the burnt surface. He states that it relieves the pain almost immediately, and that, under its use, the healing process appears to be hastened. He adds, that repeated trials for several years, and strict observation, confirm him as to the value of the treatment. It doubtless acts by excluding the air, on the same principle as Collodion or Cotton.

6. *To Sore Nipples,* Mr. Erasmus Wilson‖ speaks of the mucilage of Acacia as a useful application. He directs it to be pencilled on the tender part immediately after suckling, and the nipple to be protected with a leaden shield. He also speaks favourably of the application of a powder composed of equal parts of Gum Acacia and Borax.

7. Acetone. Pyro-acetic Ether. Pyro-acetic Spirit. $C_6H_6O_2$. A product of the distillation of Acetate of Lime, with excess of quick-lime; it is a colourless, volatile, inflammable liquid, with a peculiar penetrating smell and pungent taste like that of peppermint. Sp. Gr. 0·792.

Med. Prop. and Action. Acetone is possessed of considerable powers as an anæsthetic, and some experiments with it by M. Bechamp¶ were attended with satisfactory results. He describes it as less disagreeable to inhale than amylene, at the same time that it is more rapid in its action and less permanent in its effects. He found it to act on rabbits in thirty seconds, and the insensibility induced was complete: the rabbits recovered after a very prolonged inhalation, from which it is inferred that it is less dangerous than

* Dispensatory, p. 1129. † Med. Repository, vol. xxvii.
‡ Heister's Cases, Wirgman's Trans., p. 189.
§ Edin. Med. Surg. Journ. No. cliii. p. 428.
‖ On Diseases of the Skin, 3rd Ed. 1851, p. 178.
¶ Rev. Thérap. des Méd. Juin 1858.

chloroform or amylene. Further trials with it are required to establish its real value as an anæsthetic on man.

8. ACETUM. Vinegar. Sp. Gr. 1·008 to 1·022. Impure Dilute Acetic Acid, prepared from French wines by the acetous fermentation.

Med. Prop. and Action. The different kinds of Vinegar (Acetum Gallicum, Wine Vinegar; Acetum Britannicum, British Vinegar; Acetum Destillatum, Distilled Vinegar), although differing considerably in strength and purity, agree very nearly in their therapeutic action. Wine Vinegar is adopted, as purer than British Vinegar, in the British Pharmacopœia. Diluted Vinegar forms an excellent lotion for sponging the body in fevers; under the same circumstances, it is an agreeable refrigerant drink, when properly sweetened; sprinkled about a sick-room, it is extremely refreshing; and the vapour is useful in many affections of the throat. "In its undiluted state," observes Dr. A. T. Thompson,* "it is a powerful stimulant, and, when daily taken in large doses, in its diluted form, it produces great uneasiness, cramps, and colic, and gradually destroys, so effectually, the texture of the stomach, and its digestive functions, as to cause emaciation of the body." When it is only occasionally taken, largely diluted with water, and moderately sweetened, it displays decided soothing and refrigerant properties, and is employed with advantage *in inflammatory and bilious fevers*, quenching the thirst, calming the vascular excitement, re-establishing the perspiratory function of the skin, and restoring the action of the kidneys. The refrigerant influence of diluted vinegar on the surface is undoubted: it not only diminishes heat, but allays pain. *In Hæmorrhagic affections* the cold feeling which it produces on the skin is extended to the whole system; hence the benefit derived from it in internal hæmorrhages, and in inflammation of the cavities; as, for instance, in *uterine hæmorrhage* when applied to the thighs and abdomen; and in *acute meningitis*, applied as a lotion, to the shaved scalp. *In general fever*, sponging the body with vinegar and water is applicable to every case in which the skin is preternaturally hot, when no idiosyncrasy stands in the way. In combination with Ammonia (Liq. Ammoniæ Acetatis) it acts on the skin; combined with Soda and Potash, on the kidneys. In *Narcotic Poisoning* it has been recommended to be administered after the stomach has been evacuated by an emetic. The fact, however, of its forming a soluble salt with morphia would negative its use in *poisoning by Opium*. It proves a direct antidote *in poisoning by the Alkalies*. In these cases it is a safe and efficient remedy.

Dose, fl. drm. j. to fl. drs. iv., in any bland vehicle.

Contra-Indications. 1, Atonic Dyspepsia; 2, Debility.

9. *Therapeutic Uses. In Exanthemata, and other febrile affections*, sponging the body with vinegar diluted with water (1 part of vinegar to 6 or 8 of water) is a most soothing and refreshing application. The whole surface of the body may be gently bathed with it, two or three times daily. It may be used warm or cold, according to the feelings of the patient. A somewhat similar mixture, sweetened to the taste, forms a refrigerant drink in the same class of cases.

10. *In Scarlatina*, dilute Acetic Acid, internally, is strongly recommended by Mr. Isaac B. Brown. He considers that it is more efficacious than any other treatment, and that it tends to prevent the occurrence of dropsy. Experience has not confirmed its alleged virtues, although it is doubtless useful as a refrigerant.

* Cyc. Pract. Med. vol. iii. p. 594.

Dr. Webster* relates four cases, in which it appeared to him conclusive that sponging the body of the patient prevented the spread of the disease beyond the original patient. Further facts are required to confirm this statement. *The Sore Throat* which accompanies this disease, much improves under the application of the steam of warm vinegar.

11. *In Cynanche Tonsillaris, and in almost every form of ulcerated or relaxed sore throat*, much relief is obtained by inhaling the vapour of hot vinegar and water.

12. *In Phthisis* the value of the external application of diluted vinegar to the chest and upper part of the body, in allaying the *profuse perspirations*, is well known; it is a measure attended with salutary effects, and is of great comfort to the patient. Dr. Walshe† speaks very favourably of the practice. The mixture employed by Sir C. Scudamore,‡ for this purpose, is composed of 1 part of vinegar, 1 of Eau-de-Cologne, and 2 of water. Dr. Roberts§ strongly advocates both the internal and external use of vinegar for checking the hectic and morning sweats, restraining hæmoptysis, and producing costiveness. Dr. Cowan‖ considers that its internal use is deserving of further trial. *As a preventive of Phthisis* Dr. Graves¶ speaks favourably of the plan recommended by Dr. Stewart, of Glasgow, of washing the chest with vinegar and water, beginning with it tepid, and reducing the temperature gradually, until it can be used completely cold.

13. *In Hæmoptysis*, the internal and external use of vinegar was highly esteemed by the ancient physicians. Cœlius Aurelianus, Avicenna, and Rhases, are amongst its chief advocates. From its refrigerant and styptic operation in uterine hæmorrhage, it is probable that it might be had recourse to with advantage more frequently than it is at the present day.

14. *In Asthma and Angina Pectoris*, it is of great importance to diminish the sensibility and susceptibility of the patient to the impression of cold: one of the most effectual means of effecting this, is, for the patient, during the intervals between the paroxysms, to bathe the chest with vinegar and water, in the manner advised in Phthisis. It should be used every morning, upon getting out of bed. It is a measure fraught with benefit, also, to those who are liable to continual *catarrhal attacks*.

15. *In Uterine Hæmorrhage*, the application of cold vinegar and water to the pubes is not only agreeable to the patient, but tends considerably to arrest the discharge of blood. It may also be advantageously given internally. *Epistaxis* is sometimes effectually

* Edin. Monthly Journ. Dec. 1849. † On Dis. of the Lungs, p. 404.
‡ On Inhalation, &c. in Consumption, p. 39.
§ Trans. of the College of Physicians, vol. v.
‖ Translation of Louis on Phthisis, p. 385.
¶ Clinical Lectures, 2nd Ed. 1848, p. 104.

arrested, by introducing into the nostril a piece of lint saturated with vinegar.

16. *In Scurvy*, vinegar has been recommended; but, from the history of the disease, it appears that little reliance should be placed upon it; although in some instances it appears to be useful. Dr. Trotter,* in his account of the Channel Fleet in 1795, observes, that vinegar was carefully served to the messes of seamen throughout the squadron, to be used with the salt meat; yet, in those ships in which the men took it in large quantities, it was not observed to retard the progress of the disease. Dr Budd† places it on an equality with malt liquor or cider; but considers, justly, that it is not to be used as a substitute for lemon or lime-juice.

17. *In Purpura*, whether attended by fever, or of a passive character, Mr. Erasmus Wilson‡ advises sponging the body with tepid vinegar and water.

18. *In Hospital Gangrene*, when of a mild character, Delpech§ speaks highly of the topical application of vinegar. The ulcerations, having been previously cleansed, are to be washed with strong vinegar, and then covered with charpie wet with the same liquid. If this fails to arrest the disease, caustics become necessary.

19. *To Burns and Scalds*, Mr. Cleghorn, a brewer of Edinburgh, advised the use of vinegar; and for many years his treatment was followed by the profession, in Europe and America. He recommended the immediate application of vinegar to the burnt surface, which was continued until the pain abated; and when this returned, the application was repeated. If there were eschars, they, after the pain ceased, were covered with a poultice for six or eight hours; after which, the parts were sprinkled with finely-powdered chalk, so as to remove every appearance of moisture. The whole surface was then poulticed again, and the same plan was resumed every night and morning until the cure was complete. A plain animal diet, a small quantity of wine or beer, tonic and stimulant medicines, formed the remainder of the treatment. Purgatives were strictly forbidden.

20. *To Milk or Mammary Abscesses*, warm vinegar is stated by Dr. Dewees‖ to be so successful in the early stage of the disease, that we need not, in general, look for any other remedy. "It is," he states, "particularly useful, when the breasts are greatly and painfully distended with milk; and it should be perseveringly employed for 24 hours." His testimony in its favour is very strong. Should it fail, leeches, poultices, &c. must be had recourse to.

* Med. Naut. vol. i. p. 418. † Lib. of Medicine, vol. v. p. 75.
‡ Diseases of the Skin, p. 340. § Précis Elém. des Mal. Chir. vol. i. p. 151
‖ Diseases of Females, 6th Ed p. 502.

21. *Particles of Lime in the Eye* are effectually dissolved, and the pain eased, by bathing the eye with diluted vinegar.

22. *In Obesity*, the internal use of vinegar, in large draughts, is a popular remedy. The practice is only mentioned here to be condemned, obstinate and serious dyspepsia being the almost certain consequence of the practice.

23. ACIDUM ACETICUM GLACIALE. Glacial Acetic Acid. Monohydrated Acetic Acid, HO, $C_4H_3O_3$. Prepared by decomposing fused Acetate of Soda with Sulphuric Acid. A colourless liquid, with a pungent acetous odour, converted, when cooled to nearly 32°, into colourless prismatic crystals. Sp. Gr. 1·065, which is increased by adding to the acid 10 per cent. of water.

ACIDUM ACETICUM. Acetic Acid. Pyroligneous Acid. Prepared from wood by destructive distillation, and containing 28 per cent. of anhydrous Acetic Acid. Sp. Gr. 1·044.

ACIDUM ACETICUM DILUTUM. Dilute Acetic Acid. Prepared by mixing one pint of Acetic Acid with seven pints of distilled water. Sp. Gr. 1·006.

Med Prop. and Action. Glacial Acetic Acid is only employed as an external agent; it is a very powerful caustic. Applied to the skin, it produces intense redness and pain, followed by rapid vesication. It must be used with caution, as its action extends to a considerable depth, and a severe sore is produced. It may be used as a Vesicant where the absorption of Cantharadine would be prejudicial, as in some affections of the kidneys. (Garrod.*) Glacial Acetic Acid dissolves Cantharadine freely, and the solution so prepared may be used for rapid blistering. Acetic Acid may be applied externally as a Rubefacient, Vesicant, Escharotic, and Antiseptic. Administered internally to man or animals, the concentrated forms of Acetic Acid act as powerful corrosive and irritant poisons. Dilute Acetic Acid may be used internally in the same manner as Vinegar as a Refrigerant and Astringent.

Offic. Prep. Oxymel (Clarified Honey oz. xl.; Acetic Acid fl. oz. v.; Distilled Water fl. oz. v.) Dose, fl. drm. j.—fl. oz. j.

Dose of Acetic Acid, ♏ij.—♏xv. Of Dilute Acetic Acid. ♏xxx—fl. drs. ij.

Incompatibles. Alkalies and their Carbonates, Alkaline Earths and their Carbonates.

24. *Therapeutic Uses. In Tinea Capitis*, the local application of the strong acid is recommended by Mr. Wigan.† The first application is with the acid, diluted with three times its weight of water. On being applied, a number of spots previously looking healthy become red patches; then, with a piece of sponge tied to the end of a stick, each spot is to be imbued thoroughly with the strong acid for three or four minutes. A single application is sufficient, in the majority of cases. A crust grows up with the hair, which may be removed as soon as a pair of fine scissors can be introduced beneath it. Mr. Erasmus Wilson‡ speaks

* Lect. on Brit. Pharm. Med Times and Gaz January 30, 1864.

† Medical Gazette, Sept. 15, 1843. ‡ Diseases of the Skin, p. 448.

favourably of a similar mode of treatment repeated once in the week, and in the intermediate days using some mildly stimulating ointment.

25. *In Psoriasis*, Dr. Cummin* states that his trials with strong Acetic Acid have been highly satisfactory; the diseased cuticle separating in flakes, and a new surface being exposed, of a much more healthy character. The application of the acid is hot and painful, especially when there are excoriations and fissures; but these should be protected by some mild cerate. The acid requires, in most cases, to be repeated twice or thrice. *In obstinate cases of Lepra*, much benefit has been derived from the use of baths, acidulated with Acetic or Pyroligneous Acid.

26. *Nævus Maternus*. Dr. Behrend, of Berlin, advises, in the case of small flat nævi, the application of strong Acetic Acid, followed by compresses soaked in vinegar. Under this treatment, the blood is made to coagulate in its vessels, the nævus becomes hard and yellow, and is thrown off in the form of a parchment-like layer, by a process of exfoliation. (Mr. E. Wilson.†)

27. *Corns and Warts* may be effectually removed by the application of the strong acid. The wart should be first carefully pared down, the acid should then be applied with a camel's-hair brush, and subsequently compresses, soaked in vinegar, should be kept in contact with the part. *To Venereal Vegetations, Herpes Præputialis, &c.*, Mr. Acton‡ advises the application of the strong acid. Mixed with the white of egg, it has been advised by Bursharat as an application to *Sore Nipples*. It has also been recommended by Buchanan§ in *Deafness* caused by deficient cerumen, and in fetid discharges from the external meatus auditorius.

28. ACONITIA. Aconitia. (Aconitine.) An Alkaloid, $C_{60}H_{47}NO_{14}$, obtained from the root of Aconitum Napellus.

Med. Prop. and Action. Sedative poison, too powerful for internal use. In man and animals its action seems directed to the nervous system, and through it to the heart. Sensation is lost; there is staggering gait and inability to walk; the heart's action becomes gradually slower, and death takes place by asthenia. 1-50th of a grain is sufficient to poison a large dog, and the same quantity has proved nearly fatal in man. Very minute doses produce heat and tingling of the surface, and sometimes diuresis. Externally it may be applied in the form of ointment or solution. The Unguentum Aconitiæ of the Brit. Ph. contains Aconitia grs. viij., Rect. Sp. fl. drm. ss., Prepared Lard oz. j. Dr. Fleming's ointment consists of Aconitia grs. xvj., Rect. Sp. ℥xvj., Lard ʒj. An alcoholic solution consisting of grs. viij. to fl. oz. ij. of Rect. Sp. has also been used as an external application. When rubbed on the skin, in the form of ointment or solution, it produces a sensation of heat and pricking, succeeded by a feeling of numbness and constriction of the part, as if a heavy weight were laid upon it, or as if the skin were drawn together by the powerful and involuntary contraction of the muscles beneath. This sensation lasts from two to twelve hours, according to the quantity rubbed in. It produces very slight, if any, vascular excitement, not more

* Cyc. Pract. Med., vol. iii. p. 548.
† Op. cit., p. 336.
‡ Lond. Journ. of Med., July 1851.
§ Illust. of Acoustic Surg., Lond. 1825.

than may very easily be accounted for by the friction itself. (Turnbull.*) Dr. Fleming states, that when his Aconite ointment is applied to the conjunctiva, it produces *contraction* of the pupil; but that when applied to the temples and forehead, it produced, in two instances, dilatation of the pupil, attended with partial blindness. In consequence of its high price, it has been frequently adulterated, and is found almost inert. The method of preparing it recommended in the British Pharmacopœia, however, insures the full activity of the drug. Care should be taken not to apply the ointment or solution of Aconitia where the skin is abraded.

Offic. Prep. Ung. Aconitiæ (Aconitia gr. viij.; Rect. Sp. ℥xxx.; Lard oz. j.).

29. *Therapeutic Uses. In Tic Douloureux, Sciatica, Lumbago, and other neuralgic affections, and also in some forms of Rheumatism and Gout*, Aconitine, locally applied over the seat of pain, is one of the most certain and powerful palliatives in the Materia Medica. Dr. Thompson† states that he found it peculiarly effectual in several instances of cubito-digital and frontal neuralgia; and Mr. Skey‡ relates two cases, one of eight years and the other of nine years' duration, which were relieved by it, when all other remedies had failed. The arrest of pain is only temporary in most cases; but even this, when the pain is intense, is an advantage of no inconsiderable importance. It may be applied in the form of ointment or solution (*ante*), and it should be rubbed in over the affected part, until the pain is relieved. Dr. Turnbull,§ who introduced it into practice, advises the proportion of Aconitine to be increased at every second or third friction. Dr. Watson‖ quotes a case, which resisted the use of Aconitine, until it was combined with a saturated solution of Iodine, when a complete cure was effected.

30. Aconitum Napellus. Monkshood. *Nat. Ord.* Ranunculaceæ. *Linn. Syst.* Polyandria Trigynia. *Hab.* Mountains and Hills of various parts of Europe and Asia. England.

Med. Prop. and Action. Sedative, anodyne, and antiphlogistic.

Offic. Prep. 1. Tinctura Aconiti (Aconite Root in fine powder oz. iiss.; Rect. Sp. Oj. Prepared by maceration and percolation). Each fluid ounce of the Tincture represents 54½ grs. of the dried root. It is one-third the strength of the Tincture of the Pharmacopœia Londinensis, and one-fourth the strength of the Tincture of the Dublin Pharmacopœia. Dose, ℥iij.—x.

2. Extractum Aconiti (Prepared from the juice of the fresh leaves and flowering tops). An uncertain preparation. Dose, gr. ½ to gr. iij. or v.

3. Linimentum Aconiti (Aconite Root in powder oz. xx.; Camphor oz. j.; Rect. Sp. fl. oz. xxx., or q. s. to make a pint after seven days' maceration of the root and subsequent percolation). It is intended only for external application. One fluid ounce represents one ounce of the dried root.

The comparative activity of the different parts of the plant has been closely examined by Drs. Fleming and Turnbull. They agree that the *root* is the part which is the most active, certain, and eligible for medicinal use. The *seeds*

* On the Med. Prop. of the Ranunculaceæ, p. 126.

† Lib. of Medicine, vol. ii. p. 271.

‡ Medical Gazette, Nov. 1836.

§ Op. cit.

‖ Lectures, vol. i. p. 716.

rank second, the *leaves* third, the *flowers* fourth, and the *fruit and stem* last, in the order of medicinal activity.

Remarks on its Use. The physiological and therapeutic effects of Aconite have been carefully investigated by Dr. Fleming.* The formulæ, however, recommended by him in his valuable Monograph are considerably stronger than the officinal. The Tincture he used (Aconite Root ℥xvj. Spirit f.℥xxiv.) is six times as strong as that ordered in the British Pharmacopœia. (See *Offic. Prep.*). In other hands it has been found to be a dangerous preparation. Mr. Redfern has related a case in which five drops of a Tincture, supposed to be Fleming's, three times a day for two days, and two doses on the third day of six drops each, following each other at an interval of two hours, produced most alarming symptoms.† The dose of Fleming's Tincture as prescribed by him is ♏v. gradually increased, and of the Alcoholic Extract gr. ⅛ thrice daily. It is to the former of these preparations most of the following observations refer.

31. *Physiological Effects.* When a small piece of the root is chewed, it causes an increased flow of saliva, a peculiar numbness of the lips and tongue, with a tingling sensation, and partial loss of the use of the former. Its topical application is unaccompanied either by pain, redness, or swelling, even when the physiological effects are developed to the fullest extent. Given internally, Dr. Fleming divides its operation into four degrees.

First Degree. Half an hour after a dose of ♏v. of his Tincture, warmth is felt in the stomach, accompanied with slight nausea, and oppression of breathing, followed in about ten minutes by general warmth of the body, numbness, tingling, and a sense of distension of the lips and tongue. There is also tingling at the tips of the fingers, and a peculiar sensation is felt at the roots of the teeth. These sensations continue more or less from one to three hours. Slight muscular weakness is generally experienced, with indisposition for exertion, either mental or bodily. In about half an hour more, the pulse is found diminished in strength, and in another hour, both the pulse and the respiration have become less frequent. Thus, a pulse, which in the normal state, beats 72 in the minute, will, by that time, have fallen to 64, and the respirations from 18 to 15 or 16.

Second Degree. Should a dose of ♏x. be given at first, or the first dose of ♏v. be succeeded in two hours by another of equal amount, these symptoms supervene more rapidly and with greater severity. The tingling extends along the arms, and the sensibility of the surface is more or less impaired. In an hour and a half, the pulse will probably have fallen to about 56 beats in the minute, and become smaller and weaker, still maintaining, however, perfect regularity. Respirations about 13, and labouring; great muscular debility, giddiness, and confusion of sight come on when in an erect posture. A lethargic state ensues, with great disinclination to be disturbed, coldness of the surface, and particularly of the extremities, which are cold to the touch.

This is the utmost extent to which Aconite can be administered with safety and success.

Third Degree. On the administration of ♏v. more, two hours subsequent to the last dose, the sense of warmth and the numbness and tingling again spread rapidly over the body; diminished sensibility of the surface; pains in the joints are complained of; and the vertigo and dimness of vision are increased; the countenance becomes pale and anxious; the voice becomes weak, and there is often a dread of approaching death. The pulse occasionally falls to 40, or even 36, but, more generally, rises to 70 or 80, small, weak, and irregular. Respiration, short, hurried, and irregular, accompanied with deep sighing; surface, moist and cold; and vomiting sometimes occurs. These symptoms do not subside for one or two days.

Fourth Degree. If the medicine be continued, the countenance becomes pale

* On the Med. Prop. &c. of Aconitum, 8vo. 1845. A very complete Treatise.

† Pereira's Mat. Med. 4th Edition, vol. ii. pt. 2. p. 962.

and sunken, froth issues from the mouth, and the prostration increases; sensations, as if sinking from loss of blood; the pulse becomes smaller, weaker, and more irregular; with a cold clammy sweat. Consciousness usually remains. If the action be carried to a fatal extent, the patient becomes entirely blind, deaf, and speechless; the pupils are dilated; slight convulsions ensue, and after a few hurried gasps, death by syncope takes place.

Aconite proves fatal, 1, by a powerfully sedative impression on the nervous system; 2, by suspension of the respiratory function; 3, by syncope.

Treatment of Poisoning by Aconite consists in the administration of powerful stimulants, *e.g.*, Brandy, Ammonia. Cold Affusion has been found serviceable.

Contra-Indications. 1. Great depression, or constitutional feebleness of the vital powers. 2. Headache and other affections, arising from anæmia, or chlorosis; or, whenever there is a torpid or paralytic condition of the muscular system. 3. All cases in which there is obvious mechanical impediment to the passage of the blood, particularly through the heart and lungs. 4. Irritability of the circulation, with great diminution of power, such as occurs after serious hæmorrhage.

32. *Mode of Administration. As an Anodyne, Anti-Neuralgic, and Calmative*, Dr. Fleming directs ℥v. of his Tincture, to be given at first, thrice daily; the quantity to be increased daily, to the extent of one minim each dose, until the physiological effects, described under the second degree of operation, have been produced. *As an Antiphlogistic*, he recommends that ℥v. of his Tincture should be given at first, and repeated in four hours; by which means, the second degree of operation, will, in all likelihood, have been induced. In order to sustain the sedative action thus developed, ℥iiss. of his Tincture should be given every three or four hours, or less frequently, according to the effect produced. When this mode of administration is adopted, it is absolutely necessary that the patient should be seen and the pulse examined, before the exhibition of each dose. When this cannot be done, the remedy may be given in the manner pointed out for its use as an anodyne and anti-neuralgic.

Dr. Fleming found *the best method of administering the remedy in diseases of the heart* is to give it in smaller doses than those recommended for its use as an anodyne, but more frequently repeated, as ℥iij. or ℥iv. of his Tincture five times daily. Sickness may be avoided by administering an effervescing draught.

Dr. Fleming prefers the Tincture for internal administration, from its uniformity of action, and also because the high price of the alkaloid causes it to be extensively adulterated. The great strength of Fleming's Tincture, however, renders it a dangerous preparation, and there are few physicians who would prescribe it in the doses he recommends.

As an external application, from ʒj. to ʒij. of Fleming's Tincture may be rubbed over the affected part, thrice daily; the friction being continued each time for a quarter of an hour, or, indeed, until the physiological effects are fully developed. It should on no account be applied if there exists any abrasion of the skin. The Aconite Liniment of the British Pharmacopœia (see *Offic Prep.*) is stronger than Fleming's Tincture.

33. *Therapeutic Uses. In Neuralgia*, Aconite was first recommended by Murray;* and is doubtless a remedy of the highest value. Dr. Fleming cites forty cases, thirty of his own, and ten of other writers, in all the latter of which permanent cures were effected. Of the thirty under Dr. F.'s care, seventeen were permanently cured, and in thirteen, the relief was only temporary. Some of these were treated by external, and others by internal applications. The selection of the mode of cure must be guided,

* Apparat. Medic. vol. iii. p. 17.

in a great measure, by the nature and cause of the affection. Should it appear, observes Dr. Fleming, to be caused by inflammation, either in the painful part, or in the nerve further up in its course, or should it be traceable to sympathetic irritation, the internal use of the remedy is more likely to be beneficial; but if, on the other hand, it seems to arise from some local irritation applied to the nerve, or is merely functional, its topical application will probaby be sufficient. In every case where one method of treatment fails, the other should be had recourse to. Pereira, Copland, Watson, Skey, and others, recommend the external application; whilst Hufeland, Busse, and Téalier advise its internal administration. In *all* cases, it is advisable to commence its use externally; should this fail, it may, subsequently, be given internally. The state of the secretions should, at the same time, be carefully attended to.

34. *In Sciatica*, it was employed by Dr. Fleming in twelve cases. Of these, seven were completely cured, two temporarily cured, two partially relieved, and in one case only was no benefit experienced. He considers that it will be found most useful in those cases which appear to owe their origin to a congested or inflammatory condition of the nerve. When given internally, he recommends that the dose he prescribes as an anodyne should be administered. *In Toothache*, Dr. Fleming employed it in forty cases, by rubbing the gum with a few drops of the Tincture, or by introducing a bit of cotton, with a drop or two of the Tincture, into the carious tooth. In seven of these cases, it failed; in six it succeeded for a short time, and in the remainder (twenty-seven) it afforded complete and permanent relief.

35. *In Tetanus*, Mr. De Morgan* advocates the use of Tincture of Aconite (Fleming's) in large doses, frequently repeated. He adduces several cases in which it was productive of the best effects. There appears to be a great tolerance of the drug in this disease. It is given with the view of diminishing the irritability of that part of the nervous centre which controls the reflex muscular action, and inducing muscular paralysis, in contradistinction to opium, and analogous remedies which act on the brain, and diminish sensibility rather than irritability. It is well worthy of further trials. Cases successfully treated by Aconite are recorded by Dr. G. Smith,† of Madras, Dr. Sedgwick,‡ Dr. Woakes.§

36. *Headache*. Of fifteen cases of headaches, arising from various causes, treated with Aconite by Dr. Fleming, ten were completely cured. Of the ten successful cases, three were nervous,

* British For. Med. Chir. Rev., April, 1859.

† Madras Quart. Med. Journ., Jan. 1861.

‡ Brit. Med. Journ., Jan. 20th, 1860.

§ Brit. Med. Journ., Oct. 26th, 1861.

four plethoric, and three rheumatic. In headaches arising from a deranged state of the digestive organs (the most common cause), it failed to afford any relief. Great caution is necessary in administering the remedy in these cases. Dr. Copland* mentions a case, in which the incautious employment of Aconitine caused an apoplectic seizure and hemiplegia.

37. *In Acute Rheumatism*, Aconite, in the hands of Dr. Fleming, appears to have been particularly successful. In acute cases, the average period of cure was from five to six days; in three instances, a complete cure was effected in two days; one patient recovered in three days, and six in four days, periods much shorter than the averages under any other form of treatment. The improvement under its use was often very speedy, some alleviation of the pains being occasionally experienced in the course of an hour after the first dose had been taken, while there were few cases in which decided relief, with abatement of the redness, tension, and tenderness, was not obtained in a few hours. A longer period seems to be necessary to disperse the inflammation in the smaller joints than in the larger ones. In these cases, Dr. Fleming directs that it should be given internally, in the doses recommended as an anodyne (*ante*). Dr. Greiner,† of Leipsic, corroborates, from his own experience, the good effects detailed by Dr. Fleming; and Lombard,‡ of Geneva, states that he has had remarkable success with the Alcoholic Extract, in doses of ½ gr. gradually increased to gr. ij. or even gr. iij., every three hours. Notwithstanding these evidences of its value, it often fails to make an impression on the disease, the failure probably being due, either to the impurity of the drug, or to an improper mode of administration.

38. *In Sub-Acute and Chronic Rheumatism*, Aconite may be used, both internally and externally with advantage. Dr. Fleming prefers the internal exhibition, in what has been termed the "Active Chronic Rheumatism;" that variety which is, perhaps, properly speaking, only a very mild form of acute rheumatism, being attended with some heat, swelling of the part, and slight constitutional disturbance. In this variety, and also in *Rheumatic Gout*, it is highly spoken of, both as an external and internal remedy, by Prof. Graves.§ *In purely Chronic Rheumatism*, the external application is attended with most benefit.

39. *In Lumbago*, Dr. Fleming employed Aconite in ten cases; and in each a complete cure was effected. To the internal administration of the Tincture was added its external application to the loins, and relief was speedily experienced in every case.

40. *In Gout*, Aconite is recommended by Murray; but it has

* Dict. Pract. Med. vol. ii. p. 153.

† Die Rheumat. Krankheiten, p. 119.

‡ Hope on Diseases of the Heart, p. 180.

§ Clinical Lectures, vol. ii. p. 547.

been chiefly employed by the German and French physicians, amongst whom, Stoerck, Stoll, Vogel, Quarin, and Breva are noticed. Dr. Copland,* who cites these and other authorities, in favour of its employment, remarks that "it is certainly a medicine of greater efficacy in this disease than is generally supposed in England, and that it is more appropriate to old or chronic cases, or to weak habits of body, than to recent attacks, attended with general vascular excitement." Its external application to the painful part is sometimes attended with marked relief.

41. *In Erysipelas*, Aconite was highly esteemed by the late Mr. Liston,† who observes that the exhibition of the Extract (Ph. L.) in this and other inflammatory affections, is often followed by great abatement of vascular excitement; so that the necessity for the abstraction of blood is done away with. It may be given in doses of half a grain, in substance or dissolved in pure water, every third or fourth hour. Mr. Erasmus Wilson‡ confirms this view, and observes that it proves especially useful in checking the heart's action, and in promoting cutaneous transpiration. Mr. Liston remarks, that after Aconite has performed its office, Belladonna (gr. $\frac{1}{16}$) is productive of the greatest benefit.

42. *Painful Sprains and Bruises* are much benefited, in most instances, by the local application of the Tincture twice or thrice daily. Two cases, illustrative of its efficacy, are quoted by Prof. Graves.§

43. *In the severe intercostal pains occurring in Herpes Zoster*, Mr. E. Wilson‖ states that, in three instances, he succeeded with the external application of T. Aconiti, in combination with T. Opii, but that in some other instances it failed.

44. *In Amaurosis, arising in connexion with Gout or Rheumatism*, Aconite, externally and internally, is favourably spoken of by the German physicians; but it has not been adopted by English practitioners. Employed with caution, it might prove serviceable.

45. *In Amenorrhœa*, Aconite has been advised by some French and German physicians. Dr. Copland¶ says that he has prescribed the Alcoholic Extract with decided benefit. *As a means of preventing rigors after the passage of a catheter into the urethra*, Mr. Long** found Fleming's Tincture in doses of ♏. ij. (in Aq. f. ℥i.) an effectual measure.

46. *In Diseases of the Heart*, particularly in those in which the chief indication is to diminish the action of that organ, Dr. Fleming†† found Aconite a most valuable remedy. *In functional*

* Med. Dict. vol. ii. p. 50.
† Elements of Surgery, 2nd Ed. p. 61.
‡ Diseases of the Skin, p. 146.
§ Clin. Lect. vol. ii. p. 548.
‖ Op. cit. p. 209.
¶ Med. Dict. vol. ii. p. 538.
** Liverpool Med. Chir. Rev., Jan. 1858.
†† Op. cit.

derangement, it will often, he observes, be found, in conjunction with appropriate treatment in respect to diet, regimen, &c., equal to obtaining a complete cure. In certain cases of *organic disease*, its use has been followed with great alleviation of the painful symptoms; but in a large class of cases, where some obstruction exists, which prevents the heart from transmitting the necessary quantity of blood, by the usual number of pulsations, and it is forced to make up for such inadequacy by more frequent and forcible contractions, the use of Aconite is decidedly contra-indicated. Here it is evident that its effect would be to diminish the frequency necessary to enable the heart to perform its task. When, however, it is really desirable to reduce the action of the heart, as in *simple hypertrophy*, or functional disorder, Dr. Fleming prefers the use of Aconite to that of Digitalis, considering that its action is more purely sedative, more uniform, and its effects, at the same time, less dangerous.

47. ACORUS CALAMUS. Calamus Aromaticus. Sweet Flag. *Nat. Ord.* Gramineæ. *Linn. Syst.* Hexandria Monogynia. *Hab.* Many parts of Europe and North America.

Med. Prop. and Action. The Root or Rhizome is carminative and mildly stimulant. It may be advantageously exhibited in the form of infusion (oz. j. ad Aq. fl. oz. xij,) in does of fl. oz. iss —fl. oz. ij.
Dose of Powdered Root gr. x—gr. xx.

48. *Therapeutic Uses. In Intermittent Fevers* the Acorus Calamus was formerly held in high estimation, and it is still a popular remedy in many parts of Europe and Asia. Dr. A. T. Thompson states that this remedy sometimes succeeds when Quinine fails to produce any influence, and Prof. Royle * remarks that he has frequently employed it in conjunction with Chirata, Bonduc Nut, &c., and with success as an anti-periodic in Agues.

49. *In Flatulence, Flatulent Colic, and Atonic Dyspepsia*, the infusion (*ut supra*) proves very serviceable. It is a favourite remedy of the Hindoos.

50. ACTEA RACEMOSA. Cimicifuga Racemosa. Black Snake-root. *Nat. Ord.* Ranunculaceæ. *Hab.* North America and Canada.

Med. Prop. and Action. The Root from its bitterness has been deemed tonic, and from its popular use in chest affections expectorant, but recent researches have pointed out that its proper place is amongst the arterial and nervous sedatives. It has a marked effect in diminishing the force and frequency of the pulse, which effect lasts for a considerable time. In large doses it produces vertigo, impaired vision, nausea and vomiting with marked

* Materia Medica, p. 620.

reduction of the pulse. By some it is supposed to exercise a special action on the uterus and its functions. Its activity is probably due to a resinous principle which has been designated *Cimicifugine*. It may be given in the form of Powder, or in Decoction (oz. j. ad Aq. Oi.) in Doses of fl. oz j.—fl. oz. iij. till from Oss. to Oj is taken daily; in Tincture (oz. iv. ad Sp. Rect. Oj.) in doses of fl. drm. j —fl. drs. ij., in Fluid Extract in doses of fl. drm. j.—fl. drs. ij , or in Extract in doses of gr. v.—gr. viii.

Dose of Powdered Root, gr. xx.—gr. lx.

51. *Therapeutic Uses.* *In Chorea* it has been successfully employed by Drs. Physick, Hildreth,* Kirkbride,† Young,‡ Beadle,§ Wood,‖ and other American physicians, who relate many cases illustrative of its efficacy. Prof. Simpson, of Edinburgh,¶ also mentions a case of anomalous and severe chorea of long standing, in which the Actea was given with excellent effect. *In Epilepsy and other forms of Convulsions* connected with uterine disorder, it has likewise been employed, but not with the same unequivocally good effects as in Chorea. The best form of administration in these cases is the powdered root in doses of gr. xxx.—gr. lx. three or four times daily, or until its effects are manifested.

52. *In Diseases of the Lungs* it has long enjoyed a high repute in domestic practice in America. It was first brought forward by Dr. Garden** as a remedy in *Phthisis*, and Dr. Wheeler†† found it especially serviceable in several cases of severe and protracted *Cough*, especially in the *Chronic Cough and Bronchitis of old persons*. Dr. Hildreth‡‡ bears testimony to its value in these cases, and also in allaying the cough of Phthisis. Prof. G. B. Wood§§ considers that probably it is useful in these affections by allaying irritation through its sedative properties. *In Cynanche Maligna* a decoction of the root is recommended by Dr. Barton as an excellent gargle.

53. *In Acute and Chronic Rheumatism* it appears to be a remedy of great power. Its claims have been advocated by Drs. Johnson and Davis,‖‖ who state that they have no more doubt of the efficacy of Actea in the early stage of acute rheumatism than they have of the power of Vaccination as a preventive of Small-pox! Dr. Davis advises in these cases grs. xx. of the powder, or gutt. xxx.—lx. of the Tincture every two hours till its effects are observable. Prof. Simpson¶¶ states that in his own case it

* Amer. Journ. of Med. Sci., Jan. 1843.

† Ibid. Feb. 1840, p. 289.

‡ Amer. Med. and Surg. Journ., Feb. 1832.

§ New York Journ. of Med., July, 1840.

‖ Therapeutics, ii. p. 167.

¶ Med. Times and Gazette, Dec. 8th, 1860.

** Amer. Med. Recorder, Oct. 1823.

†† Boston Med. Journ. Sept. 1839.

‡‡ Amer. Journ. of Med. Sci., Oct. 1842.

§§ Op. cit. p. 167.

‖‖ Trans. of Amer. Med. Association, i. p. 352.

¶¶ Op. cit.

has repeatedly cured an attack of *Lumbago* with wonderful rapidity. Evidence in its favour is also adduced by Dr. M'Donald,* of Inverary.

54. *Other Diseases. In Protracted Labours* Dr. Wheeler† advises it as a substitute for Ergot. He considers that it acts not only by inducing uterine contractions but by relaxing the soft parts. This requires confirmation. Prof. Simpson‡ mentions a case of *Puerperal Hypochondriasis and Depression* which yielded rapidly to its use. As a local application in *Ophthalmia* Dr. Brandige§ regards the saturated tincture as superior to every other treatment. A strong decoction is said to be an effectual remedy in *Scabies*. It has also been used in *Dropsy*, *Hysteria*, and other affections, but with no certain results. It obtained its vernacular name of Snake-root from the repute in which it was held by the Indians as a remedy in *Snake bites*.

55. ADEPS. Adeps Præparatus. Axungia. Fat of Sus Scrofa, the Hog. Hog's Lard purified by heat.

Med. Prop. and Action. Lard is emollient; it is extensively employed in making ointments and cerates. Medicinally, it is never given by mouth; but, occasionally, it forms an ingredient in laxative enemas.

Offic. Prep. Ung. Simplex. Prepared by melting on a water bath White Wax oz. ij.; Prepared Lard oz. iij. in Almond Oil fl. oz. iij. and stirring the mixture till it becomes cold.

56. *Therapeutic Uses. In Scarlatina*, inunction of the surface with lard was first proposed by Dr. Schneemann,‖ of Hanover, and has since been adopted successfully by Dr. Mauthner,¶ of Vienna, Mr. Taylor,** of London, and others. The treatment has been further tested by Prof. Ebers,†† of Berlin; the number of cases were in all twenty-two, eleven of which presented one or more of the severe complications, of whom six died. Of the total number, inunction with lard was tried in thirteen, and the usual remedies in nine. Of the latter, five died; of the former, only one was fatal, and this was beyond hope when the treatment was commenced. The remainder recovered. The conclusions arrived at by Dr. Ebers are as follows:—

1. The inunction with lard did not, in any way, interfere with the development of the disease, as might, *à priori*, have been expected. The eruption came out on the third day, and declined on the fourth or fifth.

2. The treatment was not contra-indicated by the presence of

* Edin. Med. Journ. Aug. 1861.
† Op. cit.
‡ Op. cit.
§ Philadelph. Med. Examiner, Dec. 1851.
‖ On Scarlet Fever, translated by Mr. Milton, Lancet, Sept. 15, 1849.
¶ Révue Medico-Chir. Jan. 1849.
** New Treatment of Febrile and other Diseases, 8vo Lond. 1850.
†† Révue Medico-Chir. Aug. 1851 (R).

complications; on the contrary, these disappeared more favourably than under the ordinary treatment.

3. The chief thing to be noticed was the absence of desquamation. In no case was Anasarca known to follow.

4. This treatment appears to destroy the contagious principle.

The lard requires to be diligently rubbed in, over the whole surface of the body, every morning and evening, and, if the weather be cold, it should be done before a fire, to ensure the fat being absorbed.

57. *In Inflammatory and Typhus Fevers, in Measles and the Exanthemata generally*, inunction with lard is strongly advised by Mr. Taylor.* He relates numerous instances in which inunction of an ointment, composed of equal parts of lard and suet, was attended with the best effects. No internal remedies were employed. He states that it reduces the force and frequency of the pulse, and that when employed at an early period of the disease, it wards off a typhoid condition. The dry and brown tongue becomes clean, the patient falls into a sound sleep, and delirium subsides; in fact, all the symptoms improve with a steadiness and rapidity not seen in other methods of treating fever. Inunction should be performed twice or thrice daily. The treatment, as an adjunct to other measures, is worthy of a further trial.

58. *In Erysipelas* Mr. Erasmus Wilson † considers that inunction with lard is in every way superior to all fluid applications. He first, at the suggestion of Mr. Grantham, relaxes the skin with hot water or steam, and then saturates the surface with hot lard, which is afterwards covered with wool. He also speaks highly of the value of lard inunctions in the treatment of *Violent Sprains*.

59. *In Scabies*, Prof. Bennett ‡ employed lard inunction in four cases, and in each a cure was speedily effected. From these and other cases, he states that he is satisfied that the efficacy of Sulphur Ointment mainly depends on the unctuous matter which it contains. It is of importance that the parts should be kept moist, and, for this purpose, oil silk, so as completely to envelope the parts, should be used. The same treatment has been found successful by Mr. Bazin, § who found that six frictions during three days were sufficient to effect a cure. It requires a more extensive trial, in order to determine the real value of this treatment.

60. ÆGLE MARMELOS. Bela. Bael. Bilva, or Bengal Quince. *Nat. Ord.* Aurantiaceæ. *Linn. Syst.* Decandria Monogynia. *Hab.* East Indies, Malabar and Coromandel, and Ceylon.

* Op. cit.

† Diseases of the Skin, p. 147.

‡ Monthly Journ. of Med. Sciences, Jan. 1850.

§ Lancet, Feb. 13, 1851 (B).

Med. Prop. and Action. Although all parts of this tree are employed medicinally by the natives of India, the fruit alone calls for notice in this place, and it merits particular attention from the valuable property it apparently possesses of establishing a healthy tone in the intestinal canal, arresting diarrhœa when present, and acting as a mild aperient when constipation exists. A liquid Extract of the half-dried fruit is the preparation ordered in the British Pharmacopœia. According to the analysis of Mr. Pollock* the pulp of the fruit contains Tannic acid, a concrete essential oil, a bitter principle, a vegetable acid and sugar. Prof. Macnamara† examined the fruit both in its mature and immature state, and found the ripe to contain more tannin than the unripe fruit, in the proportion of 5 to 3; it likewise contained more sugar and more of the bitter principle and vegetable acid. After extracting from the fruits the matters soluble in water, there was obtained by means of ether, a balsam having a strong odour like that of Balsam of Peru; this was found to exist in much larger quantities in the ripe than in the unripe fruit. The comparative deficiencies in these substances were compensated for by the gummy extractive and fibrous matters. The astringent action of Bael is doubtless due in a measure to the tannin; but Dr. Macnamara suggests that to the balsam is due the tone which the fruit gives to the intestines rendering the secretions of the mucous membranes more healthy. It may be advantageously given in the form of sherbet, thus—Take of the soft gummy substance from the interior of the fruit oz. ij. mix this with fl. oz iij —fl. oz. iv. of water, sweeten to the taste, and add, if procurable, a lump of ice. This agreeable drink possesses the aroma of the fruit, and may be repeated twice or thrice daily. When prepared from the ripe fruit, it is not only astringent, but possesses the singular property of being aperient if the bowels are irregular or costive. When the patient is debilitated and the stomach weak, it sometimes disagrees; it ought then to be given in small repeated doses, and if these also are rejected, the dry Extract in doses of gr. xxx.—gr. lx. twice or thrice daily, may be tried. Another good form of administration is that of *Marmalade* prepared in the same manner as Orange Marmalade; it is usually taken like it, spread on bread, and it possesses the great advantage of keeping well for a long period.

Offic. Prep. Extractum Belæ Liquidum. (Bael. lb. j.; Distilled Water Oxij. Prepared by maceration and evaporation to fl. oz. xiv. Two fl. oz. of Rectified Spirit to be added to the fluid when cold.) Dose, fl. drs. ij.—fl. oz. j. Each ounce of liquid Extract is intended to represent oz. j. of Bael.

61. *Therapeutic Uses.* In various forms of *Intestinal Derangement*, Bael exercises a marked and valuable influence. Though noticed by Rheede,‡ Burman,§ and other old writers, it attracted little notice till 1853, when Sir Ranald Martin‖ called attention to its use. In 1854, Dr. A. Grant¶ published a paper on it, bringing together all that had hitherto been known on the subject, and recording his own experience as to its employment. He states that he has been in the habit of recommending the sherbet (*ante*) as an aperient to persons subject to *habitual constipation*, a small tumblerful, taken early in the morning, producing generally one evacuation daily. *In cases of Dyspepsia with obscure symptoms of Land Scurvy*, it seemed also to act very beneficially, and to possess alterative as well as anti-scorbutic qualities. Many

* Lancet, July, 1853.
† Indian Ann. of Med. Sci. ii. p. 233.
‡ Hort. Malab. iii. p. 37.
§ Flor. Ind. Ed. 1768, p. 109.
‖ Lancet, 1853, vol. ii p 53.
¶ Ind. Ann. of Med. Sci. ii. p. 225.

persons in Bengal, observes Dr. Grant, suffer, especially during the rainy season, from attacks of *irregularity of the bowels, periods of looseness, alternating with others of constipation;* in such states of the system, the sherbet acts admirably, in the first instance as an astringent, and in the second as an aperient. It serves in both these opposite conditions to stimulate the mucous membrane to a more natural action, combining with the ingesta and aiding healthy assimilation. It has been also given with good result to persons of delicate habits, subject to *Mucous Diarrhœa*, and likewise in *Chronic Dysentery and Diarrhœa*, especially in the forms of these affections which occur amongst the native prisoners in the Bengal jails. Dr. Grant also quotes the experience of Drs. Stewart and Jackson, of Calcutta. The former states that for several years he has employed the Bael, and that in the form of sherbet he has always found it act not only as an astringent but as a *preventive of Diarrhœa* in persons subject to that complaint. According to Dr. Jackson it proves most successful in the *chronic forms of Dysentery when the stools are frequent and bloody and mixed with mucus.* When there is heat of skin, it does not agree so well, and here it is often necessary to discontinue its use from the flatulence and indigestion which it causes. In the *Diarrhœa of Cholera* it has also been used with advantage. Dr. Cleghorn * adduces the evidence of Dr. J. Sanderson and others in favour of this remedy, and my own experience with it warrants the high encomiums which have been passed on it by others.

ÆTHER. See ETHER.

62. ALCOHOL. Absolute Alcohol. Hydrate of Oxide of Ethyl, $C_4 H_5 O,HO$. Sp. Gr. 0·795.
SPIRITUS RECTIFICATUS. Rectified Spirit. Sp. Gr. 0·838.
SPIRITUS TENUIOR. Proof Spirit. Sp. Gr. 0·920.
SPIRITUS VINI GALLICI. Spirit of French Wine. Brandy.

These are the products of the distillation and subsequent rectification of all liquids which have undergone vinous fermentation. Absolute Alcohol is only employed in chemical processes. Spirit known by peculiar designations, and of varying degrees of purity, is manufactured in many parts of the world, from a great variety of substances. Thus, in the South of Europe, it is obtained from the juice of the grape, in the form of Brandy; in the East and West Indies, from sugar, in that of Rum; in Scotland and Ireland, from barley, oats, and other grain, in that of Whiskey; in India, from the juice of the palm-tree, in that of Arrack; and, in China, from rice, in that of Shum-shoo.

* Ind. Ann. of Med. Sci. ii. p. 223.

Med. Prop. and Action. All these articles are powerful diffusible stimulants, increasing the action of the heart and arteries, occasioning a rapid flow of ideas and images, usually of a pleasant description, exciting the nervous and vascular systems, and producing a general exhilaration. This is succeeded by a state of depression, varying in intensity in proportion to the previous amount of excitement. In Pharmacy, Spirit is of great value as a solvent of numerous substances. For obtaining *a vapour bath*, burning spirit is highly convenient. Dr. Nevins advises the following method:—The patient, undressed, should sit upon a chair, and have one or two blankets folded round him, so as to be close about the neck, and to come down to the ground all round; the chair seat should be a close one, and not an open cane one. Fl. oz. j.—fl. oz. ij. of Spirit should be put into a cup, upon the ground, under the chair, and then set on fire; it burns slowly, and produces so much heat as to cause copious perspiration, which may be prolonged, if necessary, by burning an additional quantity of Spirit. Externally, it is useful as a stimulating embrocation or evaporating lotion. (For the general consideration of the internal use of Alcoholic Stimuli in the treatment of disease see STIMULANTS, part ii.)

63. *Therapeutic Uses. In superficial Inflammations, in acute Cerebral diseases, in Injuries, Contusions, Bruises, and Sprains, attended with much heat and pain, but without Abrasions*, Spirit, diluted with 6 or 8 parts of water, and applied to the surface on a thin piece of lint, acts as an excellent evaporating and refrigerant lotion.

64. *In Gout*, Sir C. Scudamore states that he has employed, with the best success, a lotion composed of 1 part of Alcohol, and 3 of Camphor mixture, rendered lukewarm by the addition of a small portion of boiling water, and applied by means of linen rags.

65. *In Retention of Urine, from Paralysis of the Bladder*, bathing the hypogastric region with Spirit, and allowing it to evaporate, is occasionally useful.

66. *In Passive Hæmorrhages*, Alcohol has been recommended, to arrest the bleeding. *In exhaustion from hæmorrhage*, brandy given internally, diluted, is of the greatest value.

67. *In Typhus, and Fevers of a Typhoid character*, the following stimulant mixture has been found of the greatest service:—Take Brandy fl. oz. iv., Cinnamon Water fl. oz. iv., Yolks of two Eggs, Sugar oz. ss., Oil of Cinnamon 2 drops, M. For deciding the period suitable for and the circumstances requiring the administration of this and similar mixtures, and of alcoholic stimulants generally, see art. STIMULANTS, part ii.

68. *In Ptyalism*, Dr. Watson* says that he has found nothing more generally useful than a gargle made of 1 part of Brandy and 4 or 6 of water. He adds that he has used it repeatedly with benefit, and that it is a thing worth remembering.

69. *To Burns* it has been recommended on the same principle as Turpentine (see that article).

70. *In Chronic Rheumatism*, Brandy and salt is a useful stimulant liniment.

* Lectures, vol. i. p. 236.

71. Aldehyde, a powerful anæsthetic agent obtained by the distillation of Sulphuric Acid, Water, Alcohol, and Peroxide of Manganese. The product of distillation is afterwards rectified with Chloride of Calcium. It boils at 193° F.

Med. Prop. and Action. Anæsthetic. The odour of Aldehyde is very unpleasant, and renders its employment objectionable. It has an advantage over Chloroform in not irritating the skin when applied to it, and is consequently better suited when local anæsthesia is to be induced (see Anæsthetics). M. Poggiali,* of the Military Hospital, Val de Grace, found that it possesses great anæsthetic power, producing insensibility in a more prompt and complete manner than Ether or Chloroform. He applied it to several animals with perfect success.

72. Allium Cepa (Bulbus). The Bulb of the Common Onion.
Allium Porrum (Bulbus). The Bulb of the Leek.
Allium Sativum (Bulbus). The Bulb of the Common Garlic.
Nat. Ord. Liliaceæ. *Linn. Syst.* Hexandria Monogynia.

Med. Prop. and Action. The bulbs of these three plants agree in medicinal properties, being gently stimulant, expectorant, and diuretic. Their activity depends upon an acrid oil, oil of onions; this is dissipated by boiling, and the bulb is rendered unirritating and demulcent. Garlic is the most powerful of the three. When a portion of a bulb is swallowed in its natural state, the oil is absorbed into the system. So penetrating is the odour that when garlic is applied in the form of poultice to the soles of the feet, it may be detected in the breath, the urine, and the perspiration.

73. *Therapeutic Uses. In Atonic Deafness, and in Otalgia*, the expressed juice of the Garlic is occasionally a useful local application. In a severe case of Otalgia, I have seen the pain entirely and rapidly subside, on Garlic juice being introduced into the external meatus. The pain had previously resisted leeches, opiate injections, and counter-irritation. It is a popular Hindoo remedy.

74 *In Hooping Cough* Dr. Dewees† says that he has never employed any remedy of equal service with Garlic in substance, to relieve "the cough of habit," after Hooping Cough; and that though he has repeatedly used it, he has never seen it fail. A child of 6 or 7 years may begin with a third of a common-sized clove thrice daily, gradually increasing the dose, as the system becomes accustomed to its use. The juice may, at the same time, be advantageously rubbed along the spinal column. Prof. G. B. Wood‡ speaks highly of the value of Garlic given in the form of syrup in *the advanced stage of Pneumonia and Bronchitis of children.*

* Med. Times, vol. xvii. p. 425, 1848.
† On the Management, &c. of Children, 7th Ed. p. 446.
‡ Therap. vol. i. p. 623.

75. *In Intermittent Fevers*, Garlic is a highly-esteemed Hindoo remedy. In Europe, it was formerly employed. Bergius * speaks highly of its virtues. He advises commencing with one clove, night and morning, and increasing the dose, until 4 or 5 are taken at a dose.

76. *In Calculous Disease and Ulceration of the Bladder*, Mr. B. Cooper† relates a severe case, treated by Mr. Cline, in which, after a variety of remedies had been employed in vain, leek tea afforded the most astonishing relief. Mr. Cooper adds, "I have seen it tried several times since, sometimes with, and sometimes without effect; but I would advise you to bear it in mind, as worthy of trial."

77. *In Chronic Catarrhs and Asthma*, Garlic was formerly much esteemed as an expectorant. It is now rarely employed.

78. *As a Vermifuge for Children*, Garlic is recommended by Rosenstein. He administered it infused in milk.

79. The other diseases in which these bulbs were formerly employed were, *Atonic Dropsies*, *Infantile Convulsions*, *Flatulent Colic*, *Scurvy*, *Pulmonary Diseases*, *Low Fevers*, and as a poultice to *Indolent Tumours*. Dr. Myrtle‡ speaks favourably of Leek Ointment (made by simmering leeks in hogs' lard) in the treatment of the severer forms of *Burns and Scalds*.

80. ALOE. The Inspissated Juice of the Leaves of Aloe Spicata, Aloe Vulgaris, Aloe Perfoliata, Aloe Socotrina, and other species of Aloe. *Nat. Ord.* Liliaceæ. *Linn. Syst.* Hexandria Monogynia. *Source*, Barbadoes, the Cape of Good Hope, the Island of Socotra, the Peninsula of India, &c. Seven varieties are described by Pereira. The British Pharmacopœia includes two kinds of Aloes :—

1. ALOE BARBADENSIS.—Barbadoes Aloes.—The inspissated juice of the leaf of Aloe Vulgaris. Imported from Barbadoes.

2. ALOE SOCOTRINA.—Socotrine Aloes.—The inspissated juice of the leaf of one or more undetermined species of Aloe. Usually procured from Socotra.

Med. Prop. and Action. Aloes, in doses of gr. ij—vj., is a stimulating purgative, its activity depending upon a peculiar extractive matter, Aloesin, readily soluble in water, but nearly insoluble in Alcohol and Ether. Its operation is particularly directed to the rectum and lower intestines, and it is administered with a view of stimulating, not only these viscera, but also the neighbouring organs, particularly the uterus. In this manner, it occasionally proves emmenagogue. It has been asserted that Aloes does not act specifically upon the lower intestines, but that its operation on these parts is owing to its

* Mat. Med. vol. i. 1782

† Prov. Med. Surg. Journ. Feb. 13, 1841.

‡ Edin. Med. Journ April, 1862.

slow solubility, its action not being evident until it has passed into and become dissolved in this portion of the intestine; but this cannot be entirely the case, as, if Aloes be applied to an ulcer or excoriated surface, it acts as a brisk purgative, producing stools of the same character as if administered internally. As a purgative, it is particularly adapted for use in Chlorosis, Amenorrhœa, and atonic states of the uterine system, in accumulations of fæces in the rectum and lower intestines, and in persons of a leucophlegmatic temperament. Aloes appears to exercise a marked influence over the venous system of the abdominal and pelvic organs. To this are due the increased flow of bile, the disposition to hæmorrhoids and irritation of the rectum, and the vascular excitement of the sexual organs which have been observed to follow its administration. Socotrine Aloes is said to be less likely to occasion hæmorrhoids than Barbadoes, but experiments have not demonstrated much difference in the effects of the different kinds of Aloes on man. Hepatic Aloes has been omitted from the British Pharmacopœia as possessing no advantages over the Barbadoes and Socotrine. The two latter both contain the same crystalline principle (aloine), but the Barbadoes contains a much larger amount of matter insoluble in water. It has been asserted that the insoluble or so-called resinous matter in Aloes is the more irritating constituent, and that the watery extracts are, therefore, safer and milder in their operation than Aloes itself. From Dr. Garrod's experiments, however, on the watery extract of Socotrine Aloes it appears that the so-called resin is a feeble agent, and that the watery extract whilst it is a more powerful purgative causes much more griping than the resinous insoluble matters.* In small doses, Aloes acts as a tonic to the alimentary canal, assisting digestion, promoting secretion and stimulating the muscular coat.

Offic. Prep.

1. Enema Aloes. (Aloes grs. xl.; Carb. of Potash grs. xv.; Mucilage of Starch, fl. oz. x.)

The Officinal Preparations in which Barbadoes Aloes is prescribed are:—

2. Extractum Aloes Barbadensis (a watery extract). Dose, gr. ii.—gr. x.

3. Pilula Aloes Barbadensis (Barbadoes Aloes oz. ij.; Hard Soap oz. j.; Oil of Caraway fl. drm. j.; Conf. of Roses oz. j.) Dose, gr. v.—xv.

4. Pilula Cambogiæ Comp. (See Cambogia).

5. Pilula Colocynthidis Comp. (See Colocynthis).

6. Pilula Colocynthidis et Hyoscyami (See Colocynthis).

The Officinal Preparations in which Socotrine Aloes is prescribed are:—

7. Extractum Aloes Socotrinæ (a watery extract). Dose, gr. ii.—gr. x.

8. Extractum Colocynthidis Comp. (See Colocynthis).

9. Pilula Aloes et Assafœtidæ (Socot. Aloes oz. j.; Assafœtida oz. j.; Hard Soap oz. j.; Conf. of Roses oz. j.) Dose gr. v.—xx.

10. Pilula Aloes et Myrrhæ (Socotrine Aloes oz. ij.; Myrrh oz. j.; Saffron oz. ss.; Conf. of Roses oz. iiss.). Dose, gr. v.—xx.

11. Pilula Aloes Socotrinæ (Socotrine Aloes oz. ij.; Hard Soap oz. j; Vol. Oil of Nutmeg fl. drm. j.; Conf. of Roses oz. j.). Dose, gr. v.—xv.

12. Pilula Rhei Comp. (See Rheum.)

13. Tinctura Aloes (Socotrine Aloes oz. ss.; Ext. of Liquorice oz. iss.; Proof Spirit Oj.). Dose, fl. drm, j. to fl. drs. ij. or fl. drs. iv.

14. Tinct. Benzoini Comp. (See Benzoinum.)

15. Vinum Aloes (Socotrine Aloes oz. jss; Cardamoms grs. lxxx.; Ginger grs. lxxx.; Sherry Oij.). Dose as a stomachic fl. drm. j.—fl. drs. ij. Purgative fl. drms. iv.—fl. drs. xij.

16. Decoctum Aloes Comp. (Ext. of Socot. Aloes grs. xc.; Myrrh grs. lx.; Saffron grs. lx.; Carb. of Potash grs. xl.; Ext. of Liquorice oz ss.; Comp. Tr. of Cardam. fl. oz. iv.; Distilled Water to fl. oz. xvj.) A mild Cathartic Antacid and Emmenagogue. Dose, fl. oz. ss.—fl. oz. ij.

* Med. Times and Gazette, Feb. 6, 1864.

81. *Observations on the Use of Aloes.* Mr. Greenhow,* to whom we are indebted for the following judicious remarks, states, that for several years, he has employed Aloes in every variety of dose, and that he has uniformly found that very small doses have answered all the purposes to be obtained from it; viz., substantial fæculent evacuations, attended with little or no irritation; and, for this purpose, from ij. to v. grains will be found sufficient. When administered in larger doses, it is apt to occasion griping, heat about the anus, and, if long continued, hæmorrhoids; it also loses its effect of properly emptying the large intestines, producing frequent small evacuations, consisting principally of mucus, and attended with tenesmus, the abdomen being at the same time distended and tender, and the patient complaining that "the bowels feel as if scraped;" the pulse is sensibly quickened, and a sense of constriction is felt about the head.

The long-continued use of Aloes has a tendency to produce emaciation. Its action on the bowels becomes uncertain; mucus and bands of lymph, and sometimes, matter resembling fat, being passed with much tenesmus; and Mr. Greenhow thinks that he has seen Enteritis and stricture of the rectum follow its prolonged exhibition. He considers that Aloes exerts a decided influence on the kidneys, and states that he has repeatedly found, that when Squills, with other diuretics, failed to act, the addition of a small portion of Aloes has speedily produced a copious diuresis.

When Aloes is given simply as an aperient, the best vehicle is Extract of Gentian. Soap, Aromatic oils and Alkalies are said to diminish its purgative powers. One or two grains of Ipecacuanha, combined with each dose of Aloes, have the effect of diminishing, and often of altogether removing, its irritating effect upon the anus; and many persons labouring under Piles are not only able to take it in this way with impunity, but with advantage. If it produces griping, a few grains of Ext. Hyoscyami may be added. Care should be taken, in every case, that the Aloes be well pulverised. Dr. A. T. Thompson states that Camphor renders the action of Aloes more certain and less irritating.

Aloes should be given with caution—1, to pregnant females: 2, to women suffering from dysmenorrhæa, menorrhagia, or organic disease of the uterus; 3, to hæmorrhoidal subjects, excepting in combination with Ipecacuanha; 4, during the presence of the catamenia.

82. *Therapeutic Uses. Constipation. In Constipation dependent upon atony of the muscular coat of the stomach, which often supervenes upon Fevers and other debilitating diseases,* Dr. C. Hastings† recommends the following formula:—℞ Aloes gr. v.; Quiniæ. Sulph. gr. j., Ol. Menth. Pip. gutt. j.—ij. M. ft. pil. ter in die sumend. These should be persevered in for a few days, when the quantity of Aloes may be diminished. *In the Constipation of Hysterical Females,* the same physician recommends Aloes to be combined with Pil. Galban. Co. (Pharm., Lond.) The Pil. Aloes c. Myrrh. is also an eligible formula. At the same time, enemas containing Assafœtida or Turpentine should be employed. *In the Habitual Constipation of Infants,* Dr. Merriman states that he has known a liniment composed of one part of Tincture of Aloes and two of Soap Liniment, rubbed over the abdomen for five or ten minutes daily, very effectual in keeping the bowels regular.

83. *In Constipation, from whatever cause,* Dr. Mettauer‡

* Medical Gazette, Nov. 19, 1836.
† Cyc. Pract. Med., vol. iv. p. 582.
‡ Brit. and For. Med. Rev. April, 1851.

speaks in the highest terms of the following formula :—℞ Aloes Soc. ʒiiss., Sodæ super Carb. (?) ʒvj., Aq. Oiv., Spt. Lavand. Co. fʒij. M. Digest for 14 days. Dose, fʒj.—fʒss. an hour after a full meal.

84. *In Dyspepsia*, occurring in persons of a relaxed habit, or in those who have been debilitated by long illness, particularly if there is reason to believe the duodenum to be implicated, Aloes (gr. ij.—iv.) combined with a grain or two of Ipecacuanha, repeated two or three times a week, is often attended with decided benefit.

85. *In Amenorrhœa*, Schönlein recommends the injection of gr. x. of Aloes in a small quantity of warm fluid, to be thrown into the rectum at the period when the catamenia should occur. He states that its action is more certain than that of any other emmenagogue. Dr. Ashwell,* on the authority of Schönlein, employed it in two or three cases with decided advantage. It is also an excellent purgative, given internally, in these cases stimulating the whole of the uterine system. It is best given in combination with the Sulphate of Iron.

86. *In Apoplexy and other Cerebral Affections*, Aloes is a valuable purgative, particularly when these affections arise from a suppression of a hæmorrhoidal discharge, or in persons of a phlegmatic habit. It is advantageously combined with Calomel.

87. *Against Ascaris Vermicularis, or Thread-worm*, the decoction of Aloes, used as an enema, has been found very effectual.

88. *To reproduce the Hæmorrhoidal Discharge*, Aloes has been frequently employed in large doses. Serious affections of the head, and of other parts, have sometimes disappeared, on the occurrence of the hæmorrhoidal flux, and therefore, in persons who have been subject to this discharge, but in whom it has stopped, it is advisable to attempt its re-establishment, with a view to relieve other more serious disorders. (Pereira.†)

89. *In Jaundice, Chlorosis*, and in some forms of *Paralysis*, Aloes, as a purgative, is particularly indicated.

90. *In Chronic Urticaria*, Mr. E. Wilson ‡ states that he has derived the greatest amount of benefit from the use of Aloetic purgatives, combined with Citrate of Iron, or Nitro-muriatic Acid, in a bitter infusion or Tincture. *In Lichen Agrius, Eczema, Acne, and other Skin Diseases*, M. Chausit § speaks highly of the application of the Glycerole of Aloes. This is formed by evaporating from four to eight parts of the Tincture of Aloes and incorporating the residue with thirty parts of Glycerine. Its action is that of a tonic, and from the effects observed in a few cases of Eczema in which I employed it I am inclined to think highly of its efficacy.

* On Diseases of Women, 8vo. 1840.
† Mat. Med. vol. ii. pt. i. p. 199.
‡ Diseases of the Skin, p. 158.
§ Gaz. des Hôpitaux, 1857.

91. ALTHÆA OFFICINALIS. Marsh Mallow. *Nat. Ord.* Malvaceæ. *Linn. Syst.* Monadelphia Polyandria. *Hab.* Southern Europe, England.

Med. Prop. and Action. The leaves and roots are demulcent. It is best given in the form of decoction (Althæa Root oz. iv., Raisins oz. ij., Water Ov., boil to Oiij.), of which Oj.—Oij. may be taken daily. It is also used in decoction, as a fomentation; and the boiled roots as a suppurative poultice. The Syrup (Pharm. Lond.) is a good form for children.

Therapeutic Uses. The decoction (*ut supra*) is a useful demulcent in *visceral inflammations*, in *pulmonary* and in *calculous affections*. It is used externally as a fomentation in *abrasions of the skin*, and in *cutaneous eruptions, accompanied with a sharp ichorous discharge*. (Thompson.) The syrup is a useful ingredient in cough mixtures.

92. ALUMEN. ALUM. The sulphate of Alumina and Potash. Al_2O_3, $3\ SO_3 + KO$, $SO_3 + 24\ HO$.

Med. Prop. and Action. Alum is astringent and styptic, whether employed internally or externally. Its local effects depend upon a chemical action on the albuminous and gelatinous constituents of the tissue. When administered internally, it is absorbed into the system, and has been detected in the liver, spleen, and urine. "After its absorption," says Pereira, "Alum appears to act as an astringent on the system generally, and to produce, more or less, general astriction of the tissues and fibres, and a diminution of secretion." Its astringent influence is chiefly directed to mucous surfaces; applied locally to relaxed or bleeding surfaces, it corrugates the surrounding tissues and causes contractions of the capillaries. In this manner, it arrests the discharge, and acts as an astringent. Administered internally in large doses it has a purgative action.

Offic. Prep. Alumen Exsiccatum. Dried Alum, a mild escharotic.

Dose of Alum, as an astringent, gr. x.—gr. xx.

93. *Modes of Administration.* The usual mode of administering Alum is in solution in water or in some simple infusion; but Sir J. Murray* considers that, employed in this way, many of its most useful effects are in a great measure neutralized. He advises its being reduced to an impalpable powder; and then mixed with a little honey or molasses, so as to form an electuary. In order to prevent it producing constipation, he advises the addition of the Supertartrate of Potash. Given in this manner, the full effects of the medicine will soon evidence themselves. This electuary, without the Potash, diluted with a little water, forms an excellent gargle, which acts, in the opinion of Sir J. Murray, not only as a constringing lotion, diminishing the diameter of enlarged vessels, but as a means of reducing the size of enlarged and turgid glands and tissues. (See also GARGLES.) Another mode of administering Alum is in the form of whey, which is made by boiling gr. cxx. of powdered Alum for a few minutes, in Oj. of milk. A teacupful of this, thrice daily, is a popular astringent and tonic in many parts of England. The Liq. Aluminis Co. (Pharm. Lond.) (Alum., Zinci Sulph. āā ʒi. Aq. Ferv. Oiij.) is an excellent form for injections, collyriums, &c.

Incompatibles. Soda, Potash, Magnesia, Lime, and their carbonates; the phosphates, Calomel, Corrosive Sublimate, Acetate of Lead, Barytes, Tannic Acid, and all vegetable infusions containing Tannic Acid.

* Dublin Med. Press, March 14, 1849.

94. *Therapeutic Uses. Diseases of the Abdominal Viscera. In Abdominal Typhus*, which was epidemic in Vienna in 1838, Drs. Dobler, Sterz, and Folwarezny,* placed their chief reliance on the internal exhibition of Alum, in doses of from gr. ij.—v. every hour. Under every form of the disease, diarrhœa, delirium, and debility, Alum is stated to have proved equally beneficial. It was found particularly serviceable in checking the exhausting diarrhœa; it apparently acted as an astringent and tonic upon the relaxed and ulcerated mucous follicles of the intestines. Prof. Fouquier,† of Paris, also states that he has been in the habit of using Alum in these cases, with marked success.

95. *In Colica Pictonum*, Alum is one of the most efficacious remedies we possess. It was introduced into England, from Holland, by Dr. Percival ‡ in 1774, and since that period, it has been extensively employed. The theory of its action is, that it converts the poisonous salt of lead in the system into a comparatively innocuous sulphate. Sir J. Murray § extols its efficacy, and advises it in doses of gr. xv. every two hours. He found that, in these doses, it frequently acts as a purgative, and is productive of unequivocal benefit. Dr. Copland ‖ adds his testimony to its value, and advises its combination with Opium and Camphor. Dr. Brachet ¶ states that he has employed it in 150 cases with complete success. He gives ʒiss. to ʒij. daily, with gutt. xl.—l. T. Opii. At the same time, he thinks it of importance to procure one or two evacuations from the bowels daily, by means of Croton or Castor oil.

96. *In Infantile Cholera*, Alum, in doses of from ʒss. — ʒj. daily, was found by Dr. Dürr ** to be signally successful. Of sixty-seven cases thus treated he lost only seven. The age of the children varied from the period of birth to fifteen months. It may be advantageously combined with sedatives.

97. *In Chronic Dysentery*, Alum was formerly held in high repute, although little employed at the present day. It has been advised, variously combined, by Birnstiel, Loos, Hunnius, Michaëlis, Hargens, &c. Mosely and Jackson employed it, in conjunction with Sulphate of Zinc, by the mouth and in injections; and Adair found it useful, combined with opium and aromatics, in epidemic dysentery, occurring amongst negroes (Copland).†† I have seen benefit from Alum, in doses of gr. xxx. daily, given in conjunction with Dover's Powder, but have

* Brit. and For. Med. Rev. April, 1845.

† Brit. and For. Med. Rev. N. S. No. ii. p. 568.

‡ Obs. on the Poison of Lead, Lond. 8vo. 1774.

§ Dublin Medical Press, March 14, 1849.

‖ Dict. of Pract. Med. vol. i. p. 374.

¶ Brit. and For. Med. Rev. Jan. 1851.

** Hufeland's Journal, July, 1835.

†† Med. Dict. vol. i. p. 730.

always attributed the benefit derived from the formula to the latter medicine.

98. *In Chronic Diarrhœa, depending upon a relaxed condition of the mucous intestinal membrane*, Alum, given internally, to the extent of gr. xxx.—gr. lx. daily, is often attended with great amelioration. It may also be employed in the form of enema. Drs. Adair * and Harrison † speak favourably of it, in this class of cases. It may be advantageously given in the formula advised by Dr. Joy: ‡—℞ Alum. gr. x., Pulv. Kino gr. x., Conf. Rosæ q. s., ft. pil. sextis horis sumend.

99. *In Catarrhal Affections of the Stomach*, Sir J. Murray § speaks in the highest terms of Alum. In one aggravated case, attended with *Pyrosis*, a complete cure was effected by Alum in electuary (*ante*), in doses of gr. xxij. thrice daily. He considers that it renders the mucous coats more firm, and restores their tone and strength.

100. *In Prolapsus of the Rectum*, the injection of a solution of Alum (gr. lx.—gr. cxx. ad Aq. fl. oz. viij.) proves serviceable. It may also be used with advantage in bleeding and painful Piles, when unattended by inflammation.

101. *Affections of the Mouth, Throat, and Fauces. In Angina Membranacea, in Diphtheritis and Catarrhal Affections of the Throat*, the local application of Alum is very serviceable. In chronic cases, when the mucous membrane is much congested, and covered with mucus, which gives rise to a troublesome cough, Alum gargles (gr. lx.—Aq. fl. oz. vj.) afford great relief and benefit. *In acute cases*, Alum, reduced to an impalpable powder, and blown through a quill on the affected part, is stated by M. Perrin ‖ and others to be signally successful. For the proper mode of using this application, see art. Insufflation. part ii.

102. *In Croup*, Alum is commended by Prof. Meigs ¶ as an emetic, in preference to Antimony or Ipecacuanha. He states that it acts more speedily and certainly than these medicines, and produces less prostration of the vital powers. The dose, gr. xxx. —gr. lx., is to be mixed with a teaspoonful or two of water, and repeated every ten or fifteen minutes, until it produces a full emetic effect. It is rarely necessary to repeat it.

103. *In Ulceration and Relaxation of the Throat*, a solution of Alum in water or decoction of Cinchona (gr. lx. ad Aq. fl. oz. xii., sweetened with honey), proves a very useful gargle for ordinary cases. (See Gargles, part ii.)

104. *In Ulceration and Spongincss of the Gums, whether Mer-*

* Edin. Med. Comment. vol. ix. p. 21.
† Lond. Med. Journ. vol. ii.
‡ Lib. of Medicine, vol. v. p. 295.
§ Op. cit.
‖ Bull. Gén de Thérap March, 1842.
¶ Medical Times, vol. xvi. p. 416.

curial or Scorbutic, the lotion advised in the last section, with the addition of T. Myrrhæ fl. oz. ss., will prove useful. It should be used several times daily. *To Scorbutic Ulcers*, very finely-powdered Alum, in substance, may be applied.

105. *Diseases of the Genito-urinary Organs. In Gonorrhœa and Gleet*, the injection of a solution of Alum (gr. iv.—v. ad Aq. fl. oz. j.) is often productive of benefit. The diluted Liq. Alum Co. (one part to six or eight of water) is also a good formula. Dr. Friedrich,* of Leipsic, advises its internal use thus: ℞ Alum, ʒj., Aq. Dest. fʒ vj., Ext. Glycyrrh. ʒj. M. Dose, a table-spoonful, thrice daily. He advises it in the inflammatory, as well as in the chronic stages. He states that, under its use, all the symptoms subside rapidly, and that he never saw any ill effects from its employment. In obstinate cases, it may be advantageously combined with Cubebs. *In Gonorrhœa Præputialis*, a solution of Alum (gr. lx.—Aq. fl. oz. i.) applied on lint to the part, is generally effectual.

106. *In Leucorrhœa*, Alum combined with Pil. Aloes Co. proves highly serviceable. It may be given in doses of gr. viij. thrice daily. It also forms, with Sulphate of Zinc (Liq. Aluminis Co.), an excellent vaginal injection. The decoction of oak bark also forms a good vehicle (Alum. gr. lx. ad Decoct. Oj.). Dr. Burne† found this solution most serviceable when simply applied continuously to the external parts. Dr. Dewees‡ states that in some obstinate cases, he has effected a cure by Alum (gr. v.) and Nitre (gr. x.) thrice daily. The injection found most serviceable by Dr. Tyler Smith is as follows: ℞ Alum Sulph. ʒ ss. Tannin ʒi.—ʒij. Aq. Oij. One-half to be used at night and the other in the morning.

107. *In Menorrhagia and Uterine Hæmorrhage*, Alum internally has been advised by Lentin, Müller, Hufeland, Dewees, &c., and it often proves effectual in controlling the discharge. Dr. Fergusson§ regards it as a highly useful styptic, and advises it in doses of gr. viij. in Syrup of Ginger, three or four times daily. In purely atonic cases, Alum in solution (gr. lx., Decoct. Querc. Cort. Oj.) may be used as a vaginal injection. It is inadmissible, if any inflammatory symptoms are present.

108. *In Morbid Growths and Ulcerations of the Uterine Cavity, or of the Os Uteri*, an Alum hip bath (lb. j. Alum. ad Aq. C.j.) is strongly advised by Dr. Ashwell,‖ and its utility is confirmed by the reports of Delmas, Recamier, and others. Care should be taken that the fluid passes well up into the vagina.

109. *In Prolapsus Uteri*, the same measure is attended with the

* Med. Chir. Rev. lxi. p. 214.
† On Habitual Constipation.
‡ Diseases of Females. p. 81.
§ Lib. of Med. vol. iv. p. 316.
‖ Diseases of Females, 8vo, 1840.

best effects. Dr. Nevins * also speaks highly of a pessary composed of equal parts of powdered Galls and Alum, inclosed in a fine muslin bag.

110. *In Hæmaturia* which resists the action of the Acetate of Lead and other ordinary remedies, the injection into the bladder of a solution of Alum (gr. xx. ad Aq. Oj.) is sometimes effectual in arresting the discharge. This should not be had recourse to, until it has been ascertained that the bladder, not the kidneys, is the seat of disease. Dr. Prout observes that he has "never seen any unpleasant consequences follow the use of this expedient; and that he has seen it immediately arrest the most formidable hæmorrhage, when all other remedies had failed, and when the bladder had repeatedly become again distended with blood almost immediately after its removal." If, after the use of the injection, coagula remain in the bladder, they should be broken up by repeated injections of cold water. Alum in doses of gr. x.—xv. may be given internally at the same time; although, as an internal remedy, it is less efficacious than Gallic Acid. *In Catarrh of the Bladder* it is highly spoken of by Sir J. Eyre, in doses of gr. x.—xv. thrice daily.

111. *Diseases of the Eye. In Purulent Ophthalmia*, a collyrium of Alum (gr. xxx. ad A. fl. oz. vj.) is a useful cleansing application. In the severer forms, a saturated solution of Alum, dropped into the eye, is occasionally of great service. *In the Purulent Ophthalmia of Egypt*, Clot Bey found great benefit from dropping into the eye a mixture of the saturated solutions of Alum and Sulphate of Zinc. Dr. Rognetta speaks highly of its value.

112. *In the Ophthalmia of India*, commonly known as "Country Sore Eye," I can speak from experience of the efficacy of the following native application:—Place some finely-powdered Alum on a heated plate of iron, and whilst the salt is in a state of fusion, add a small portion of lemon or lime juice, until it forms a black soft mass. This, whilst hot, is placed entirely round the orbit, taking care that none of it gets beneath the eyelids, as it causes, under these circumstances, intense agony. One or two applications, each being allowed to remain on for twelve hours, are sufficient in ordinary cases to effect a cure.

113. *In the Ophthalmia of Infants*, after the subsidence of acute inflammation, a collyrium of Alum (gr. iv. ad Aq. fl. oz. j.) is one of the most serviceable applications which can be had recourse to. I have employed it with success in some hundreds of cases. It has also the recommendation of Ramsbottom, Lawrence, Pereira, &c. *In Ophthalmia Tarsi*, a similar collyrium is advised by Mr. Howard.

114. *In Ecchymosis of the Eye*, and in *some forms of Oph-*

* Trans. of Pharmacopœia, 1851, 342.

thalmia, an Alum poultice is an effectual application. It is made by agitating a small piece of Alum with the white of an egg, until it forms a coagulum. This is placed between two pieces of thin rag, and applied to the eye for some hours.

115. *Hæmorrhagic Diseases.* The value of Alum in Menorrhagia and Hæmaturia has been already considered. It likewise proves serviceable in purely *atonic Hæmoptysis.* Dr. Theophilus Thompson * considers that it is one of the best direct astringents which can be employed, and thinks that it acts more efficiently when allowed to dissolve in the mouth than when taken in mixture. He advises the following prescription for this purpose:—℞ Pulv. Gum. Acaciæ, Sacch. Alb. āā ʒiij., Pulv. Tragac. ʒiss., Aluminis ʒij., Ext. Catechu ʒiij., Aq. Rosæ q. s. ft. massa. Divide into sixty lozenges. *In atonic Hæmatemesis*, Alum in doses of gr. viij.—xij. thrice daily, in combination with Opium, proves serviceable, although it is of inferior efficacy to the Acetate of Lead. *In profuse atonic Epistaxis*, the injection of a solution of Alum (gr. cxx. ad Aq. fl. oz. vj.) into the nostrils often proves effectual in arresting the discharge. *In Hæmorrhage from leech bites, in that from the gums after the extraction of a tooth, and in other superficial hæmorrhages*, a saturated solution, or the powder of Alum, locally applied, is often an effectual styptic.

116. *Other Diseases. In the Chronic stage of Hooping Cough*, no remedy, in my practice, has proved more efficacious than Alum, given in increasing doses. A very excellent formula is recommended by Dr. Golding Bird: †—℞ Alum. gr. xxv., Ext. Conii gr. xij., Aq. Anethi f ʒiij., M. Dose, a dessert-spoonful every four or six hours, for a child of two or three years old. The quantity of Conium may often be advantageously diminished.

117. *In Dilatation of the Heart, and Aneurism of the Aorta*, Alum has been advised by Kreysig and Dzondi. Sundelin, also, mentions a case of supposed dilatation of the heart, in which relief was gained by the use of Alum. (Pereira. ‡)

118. *In Diabetes*, under the idea that the discharge might be arrested by the use of powerful astringents, Alum, in combination with other remedies of the same class, was advised by Dover,§ Brocklesby,‖ and others; but Dr. Brisbane¶ satisfactorily proved that it was incapable of arresting the disease.

119. *In Intermittent Fever*, Alum was, at one time, much used, it having been recommended by Ettmuller, Lindt, Müller, and others. Lange and De Mera prescribed it with aromatics and Sulphuric Acid, or Ether, and Adair with Cinchona. (Copland.**) It is rarely used at the present day.

* Lancet, July 19, 1851.
† Guy's Hospital Reports, April, 1853.
‡ Mat. Med. vol. i. p. 669.
§ Legacy of a Physician, &c. p. 33.
‖ Med. Obs. and Enq. vol iii.
¶ Select Cases, &c. 8vo. 1772.
** Med. Dict. vol. i. p. 944.

120. *In Rupia*, Mr. Erasmus Wilson* states that in one very obstinate case, he succeeded in healing the ulcerations, after other applications had failed, by injecting a strong solution of Alum beneath the undermined edges. *To the ill-favoured ulcers left by Ecthyma*, he advises the application of a solution of Alum, with or without Opium.

121. *To flat nævi*, Dieffenbach recommends the use of a compress of lint to be firmly bandaged on the morbid structure, and to be frequently wetted with a solution of Alum. The lint should be disturbed as little as possible, and the compression maintained, if necessary, for several weeks. When the nævus becomes white, flat, and firm, its speedy cure may be expected. (E. Wilson.)

122. *To Chilblains*, an Alum poultice (sect. 114) is stated to be an excellent application. It is only admissible in unbroken chilblains.

123. *To indolent and other Ulcers*, whether of the skin or mucous membranes, Alum has been found serviceable. It is particularly recommended by Dalmas. As it causes much irritation, he advises it to be combined with Opium, and made into an ointment with lard; used thus, it quickly determines the cicatrisation of ulcers. It occasionally gives rise to great irritation. *To repress the growth of fungous granulations*, burnt Alum, sprinkled over the surface, is very effectual. Dr. J. P. Walker,† of the Bengal Medical Service, speaks in the highest terms of the benefit derived from a combination of Calcined Alum, Catechu, Opium, and Rusot (Extract of Berberis Asiatica) in the form of ointment, in the treatment of *Hospital Gangrene*.

124. Amber Succinum. Probably the resin of some coniferous tree. *Source*, Northern Europe, Assam, Japan, China, &c.

Med. Prop. and Action. Stimulant? It yields, on distillation, an acid and an oil (Succinic Acid and Succinic Oil), which, in doses of ℥v., is regarded as stimulant, anti-spasmodic, and expectorant. It formerly entered into the composition of Eau-de-Luce. Externally, the oil is occasionally used as a liniment. It is a remedy of little value.

125. *Therapeutic Uses. In Hooping Cough*, it was formerly employed. Dr. Alnatt considers that he has seen benefit from the application of a liniment, composed of equal parts of Succinic Oil and Spirits of Hartshorn, well rubbed into the spine, night and morning. The benefit derived was probably due to the friction employed.

126. *In Epilepsy*, Amber was, at one time, much esteemed. It is well spoken of by Riverius,‡ Beattie,§ Cullen,‖ and others. It has now fallen into disuse.

* Diseases of the Skin, pp. 198-336.
† Indian Ann. of Med. Sci. v. p. 83.
‡ Prax. Med. p. 32.
§ De Cognos. et Cur. Morb. &c. 1780.
‖ Mat. Med. vol. ii. p. 361.

127. *In Hysteria, and some nervous and spasmodic affections*, it was also employed, but is now rarely prescribed.

128. Ammonia. A combination of 1 Eq. of Nitrogen and 3 of Hydrogen. At ordinary temperatures it is gaseous. By a pressure of 6·5 atmospheres, at 40° F., it is condensed into a transparent, colourless fluid. Sp. gr. 0·76. Dry Ammonia has no alkaline reaction, the presence of water is required for the manifestation of this property. By assuming the existence of the hypothetical metal Ammonium, NH_4, the chemical nomenclature of the Salts of Ammonia is assimilated to that of the Salts of the other alkaline metals. This nomenclature has been adopted by the compilers of the British Pharmacopœia.

Phys. Effects of Ammonia and its Salts. Hufeland* observes that the officinal, and probably all, the salts of Ammonia have the property, to a greater or less degree, of dissolving the blood corpuscles, although slowly, and the protein textures generally. When blood is combined with an ammoniacal salt, it acquires, generally, a brighter red; but this soon passes into a brownish red hue: it does not coagulate, but forms, at best, a loose, semi-fluid cruor, the corpuscles begin to disappear, and the whole becomes more limpid. Blood thus decomposed, progressively evolves distinct traces of Ammonia. It is very probable that we may partially explain, upon chemical grounds (solution, and disengagement of Ammonia), why large doses of the Hydrochlorate of Ammonia act as poisons, and smaller doses, long continued, induce a scorbutic condition. Yet the same salt, judiciously exhibited, furnishes a valuable stimulant to the secretory and excretory apparatus. That chemical attraction is inadequate to account for the therapeutic and poisonous quality of the hydrochlorate is obvious, inasmuch as it exercises a general action and induces inflammation of the stomach, even when introduced into the subcutaneous cellular tissue.

Dr. B. W. Richardson† has come to the conclusion that the coagulation of the blood depends on the evolution from it of Ammonia. Without going into the question of the correctness of this view, which has met with strenuous opposition both here and on the Continent, it is of importance to notice his observations on the physiological effects of Ammonia. He has confirmed the statement that the effect of the addition of Ammonia to freshly drawn blood, is to prevent coagulation, and to destroy and alter the blood globules. In this respect the action of Ammonia resembles that of the fixed alkalies. When Ammonia or its carbonate are administered for some time to animals or man, the effect is to modify the blood corpuscles; they become easily soluble, crenate at the edge, many-sided, colourless, transparent, collapsed, and loosely agglomerated, but not in rolls; and the blood when drawn, or after death, is absolutely fluid or looscly coagulated. These changes in the blood he thinks correspond closely with those observed by Jenner in the blood of patients suffering from typhous fevers. By making animals breathe or swallow Ammonia, Dr. Richardson has been able to induce a condition resembling the typhoid in man. A superalkaline condition of the blood from the presence of an excess of Ammonia is observed in yellow and typhous fevers, and other diseases of the typhoid type, and in cases where the function of the kidney is suppressed. In such conditions, therefore, he believes that the administration of Ammonia and other alkalies is contra-indicated. The ammoniacal condition of the blood is recognized by the ammoniacal condition of the breath, tested

* Chemie und Med. &c., Berlin, 1841.

† Astley Cooper Prize Essay on the Coagulation of the Blood.

by a rod dipped in hydrochloric acid. Ammonia acts in the first instance as an excitant to the heart and respiration, but in its principal effects he believes it does not differ from the other alkalies. It is most useful in all cases where fluidity of the blood and plastic tissues are required—in all cases of the inflammatory type when fibrin is in excess, and where there is rapid oxidation—in cases of induration of the tissues; and it may be given as the other alkalies when acidity of the secretions is a prominent symptom, as in acute rheumatism.

Salts of Ammonia with a vegetable acid, such as the acetate, citrate, or tartrate, exert no influences in producing an alkaline condition of the urine. The Ammonia is either oxidized and converted into nitric acid, or more probably eliminated by the skin and mucous membranes. It does not pass through the renal organs.*

The vapour of Ammonia is powerfully irritant; if inhaled, it produces spasm of the glottis, and death results from Asphyxia. The diluted vapour causes much irritation of the lining membrane of the bronchial tubes, and also that of the mouth and nose. It is also a powerful nervine stimulant, as is best seen in the application of the vapour in *syncope*. Ammonia is the basis of the following preparations:—

129. AMMONIÆ ACETATIS LIQUOR. Solution of the Acetate of Ammonia. Spirit of Mindererus. $NH_4O, C_4 H_3 O_3$, dissolved in water. Sp. gr. 1·06. *Prep.* Strong solution of Ammonia fl. oz. iiiss.; Acetic Acid fl. oz. x., or a sufficiency of each ingredient to produce a neutral solution. This Liq. Ammoniæ Acetatis of the British Pharmacopœia contains five times as much Acetate of Ammonia as the Liq. Ammoniæ Acetatis of the London Pharmacopœia, and six times as much as the same solution of the Dublin and Edinburgh Pharmacopœias.

Med. Prop. and Action. Refrigerant and diaphoretic. Externally it is employed as a lotion and collyrium.

Dose, ℥ xx. to fl. dr. i. properly diluted.

Incompatibles. Acids, Alkalies and their carbonates; Alum; Magnesia; Lime-water; Corrosive Sublimate; the sulphates of Iron, Copper, and Zinc; Nitrate of Silver; the Acetate of Lead.

130. *Therapeutic Uses. In Febrile and Inflammatory Affections*, and *Exanthemata*, those medicines which determine freely to the skin are well calculated to afford relief. Of these, none will generally answer the purpose more uniformly than Liq. Ammon. Acet. It is best given in combination, as follows:—℞ Liq. Ammon. Acet. fl. drs. ij., Spt. Æther Nit., Vin. Ant. Tart. āā fl. drs. ij., Aq. fl. oz. vss. M. Dose, fl. oz. iss. twice or thrice daily. It also forms a good auxiliary to more active measures. *In Catarrh*, a similar formula may be employed with advantage. *In Pneumonia* and other acute diseases, Liq. Ammon. Acet. was prescribed by Dr. Todd as an adjunct to the stimulating treatment he employed.

* Garrod, Med. Times and Gazette, Feb. 6, 1864, p. 147.

131. *In Inflammatory Dropsy*, Dr. Todd * found Liq. Ammon. Acet. a very valuable sudorific, particularly when combined with small doses of Tartar Emetic. He advises it in doses of f ʒss. (Pharm. Lond.) twice or thrice daily.

132. *In Tonsillitis*, the febrifuge mixture (sect. 130) will be found very useful, at the same time that the following formula may be advantageously used as a gargle:- ℞ Liq. Ammon. Acet. fl. drs. ij., Spt. Vin. Rect. fl. oz. j., Aquæ fl. oz. ivss. M.

133. *In Porrigo of the Scalp*, Liq. Ammon. Acet. has been used by Dr. A. T. Thompson † as a lotion with the best effect.

134. *In Influenza*, if the skin be hot and dry, the pulse frequent, and much febrile action be present, mild diaphoretics are indicated. Of these, Dr. Theophilus Thomson ‡ considers this solution the most appropriate and efficacious. It may be advantageously given with other diaphoretics.

135. *In Alopecia or Baldness*, when the skin is furfuraceous, or the cuticle hard and shining, Dr. T. Todd § recommends the following lotion:—℞ Ammon. Acet., Ammon. Sesquicarb. ää ʒij., Alcohol f ʒss., Aq. f ʒiv., M. ft. lotio nocte maneque applicand.

136. *In Dysmenorrhœa*, the Acetate has been strongly advised by Cloquet and Patin. They found it very successful in relieving the paroxysms of pain.

137. Ammoniæ Benzoas. Benzoate of Ammonia, $NH_4O,C_{14}H_5O_3+HO$. *Prep.* Neutralize oz. ij. of Benzoic Acid with fl. oz. iij. of Solution of Ammonia mixed with fl. oz. viij. of Distilled Water. Evaporate at a gentle heat and crystallize.

Med. Prop. and Action. A stimulating diuretic and stimulant to the mucous membrane of the urinary passages. It has the same action as Benzoic Acid, but it is preferable on account of its greater solubility.

Dose, gr. x.—gr. xx.

Phys. Action. Benzoate of Ammonia is rapidly absorbed, and its Benzoic Acid is converted into Hippuric Acid by the assumption of the elements of glycocoll, probably of glycocoll itself, which exists in the blood. Benzoic Acid $C_{14}H_6O_4$+Glycocoll $C_4H_5NO_4$=Hippuric Acid $C_{18}H_9NO_6$+Water 2HO. The urine is altered in character, from the presence of the Hippuric Acid, which is eliminated by the kidneys; hence it becomes more acid and irritating. Like Benzoic Acid, Benzoate of Ammonia has no influence on the formation or secretion of Uric Acid. The Ammonia with which the Benzoic Acid is combined does not interfere with its acidifying action on the urine. The Ammonia does not pass through the renal organs, it is supposed to be either oxidised and converted into Nitric Acid, or eliminated by the skin and mucous membranes.‖

138. *Therapeutic Uses.* Generally the same as those of Benzoic

* Med. Gaz. April 4, 1849.
† Dispensatory, p. 886.
‡ Lib. of Med. vol. iii. p. 211.
§ Cyc. Pract. Med. vol. i. p. 52.
‖ Garrod, Med. Times and Gazette, Feb. 6, 1864, p. 147.

Acid. *In Chronic Inflammation of the Bladder*, Dr. Garrod has found much benefit from its employment. It is of considerable service where a tendency to phosphatic deposit exists.*

139. AMMONII BROMIDUM. Bromide of Ammonium. A Combination of Ammonia with Hydrobromic Acid, $NH^3 + HBr. = NH_4Br.$

Med. Prop. and Action. Dr. Gibb has investigated the *physiological effects* of this salt. He finds that as an *absorbent in glandular and other enlargements* it is not inferior to the bromide of potassium. It appears to exercise a beneficial effect in a number of diseases in which the ganglionic nervous system is functionally engaged. It also exercises a marked control over the mucous membranes of the entire body, and especially appears to deaden the sensibility of the fauces and palate.

Dose, gr. ij.—x. thrice a day.

140. *Therapeutic Uses.—In Hooping Cough* Dr. Gibb has found it of great value. He finds that many cases may be readily cured by it. If there is a tendency to bronchial or pneumonic inflammation, he recommends that it be combined with ipecacuanha wine. It appears to control the special nervous symptoms of the disease rather than the catarrhal. The spasms diminish in frequency and severity, and the whoop is not so frequently heard. He has a greater faith in the permanent effects of nitric acid, but thinks the bromide of ammonium worthy of a more extended trial. The dose of the bromide for infants is gr. ij. or iij. three times a day. For older children gr. iv.—viij., or gr. x. when the symptoms are very severe.†

141. *In Epilepsy* Dr. Gibb has prescribed it with the effect of arresting and diminishing the number of fits.‡

142. *In Strumous Ophthalmia* its effects are sometimes beneficial and decided. In *conjunctivitis*, *corneitis*, and *leucoma*, *opacities* are found to diminish under its use.§

143. *In Glandular Enlargement* and *Atheroma* it has been found to promote the absorption of the morbid deposit. *In Corpulency* the adipose tissue is lessened and the secretion from the oily sudoriferous glands is modified and diminished.‖

144. AMMONIÆ CARBONAS. Carbonate of Ammonia. Sesquicarbonate of Ammonia (Ph. Lond. and Dub.). Called also the Sub-carbonate of Ammonia. Volatile, or Smelling Salts. Salts of Hartshorn. Baker's Salt. A compound of Carbonic Acid 55·93, Ammonia 28·81, Water 15·26, in 100 parts. $2NH_4O, 3CO_2$.

* Garrod, Med. Times and Gazette, Feb. 6, 1864, p. 147.
† Lancet, Sept. 26, 1863, p. 365.
‡ Lancet, Jan. 3, 1863, p. 11.
§ Ibid.
‖ Ibid.

Med. Prop. and Action. Antacid, stimulant, diaphoretic, and expectorant, in doses of gr. v.—xv. It is preferable to all the other alkaline carbonates, in cases where the vital powers are much depressed. It is emetic in doses of gr. xxx.; in larger doses it causes colic, convulsions, and great disturbance of the nervous system. If taken for a long period, it occasions much itching of the scalp, and the skin generally. In inducing a liquid state of the blood, and in other respects, it resembles the other salts of Ammonia (see sect. 128). It is very valuable as "smelling salts," in *syncope, hysteria,* and *asphyxia.* It is occasionally used for making effervescing draughts; 20 grs. of the sesquicarbonate = 6 fl. drs. of lemon-juice = 24 grs. of Citric Acid = 26 grs. of Tartaric Acid. The two former, the Citrate of Ammonia, and the latter, the Tartrate, are very useful refrigerants in febrile attacks and in gastric irritation.

Offic. Prep. Spiritus Ammoniæ Aromaticus. (See Art. Ammoniæ Sp. Arom.)

Dose. As a stimulant and diaphoretic gr. v.—gr. xv. As an emetic gr. xxx.

Incompatibles. Mineral acids; Potash; Soda; Lime; Lime-water; Magnes. Carb.; Magnes. Sulph.; Alum; Salts of Iron, except the Tartrate; Sulphate of Zinc; Chloride and Bichloride of Mercury; the Acetate and Subacetate of Lead.

145. *Therapeutic Uses. Acidity of the Primæ Viæ, Heartburn, Flatulence.* In these affections, particularly when occurring in cases of Atonic Dyspepsia, or in hysterical females, the Sesquicarbonate, in doses of gr. v.—viij. in some aromatic water, proves very efficacious. It may be repeated, if necessary.

146. *Asthma.* In those forms of Asthma arising from, or connected with disease of the heart, Dr. Hope * states that he has derived more benefit from this salt, in doses of gr. x.—xv., than from any other remedy. In a very obstinate case which resisted all other medicines, the following formula afforded great relief:— ℞ Ammon. Sesquicarb. gr. viij., Antim. Tart. gr. ¼, Aq. Anisi f℥iss., M. ft. haust, alternâ horâ sumend.

147. *Cancrum Oris.* Mr. Wallace† states that he has seen some very severe cases of Cancrum Oris cured by the internal use of the Sesquicarbonate, in doses of gr. v., gradually increased to gr. x.—xx., every 2 or 3 hours, according to the severity of the symptoms. He advises the strong Nitric Acid as a local application, at the same time. A liberal diet should be allowed.

148. *Diabetes Mellitus.* Dr. Barlow‡ considers the Sesquicarbonate of Ammonia as the most clearly indicated and the most efficacious remedy in this disease. The following is the theory on which he formed this opinion. He believed that the sugar found in diabetic urine is not necessarily connected with, or dependent upon, perverted action of the kidneys, but that it is formed in the primæ viæ, in the early stage of the process of sanguinification. The saccharine particles of food are not changed in the stomach, whilst the starch, which most articles of vegetable

* On Diseases of the Heart, p. 414.
† Dublin Hosp. Reports, vol. iv.
‡ Guy's Hosp. Reports, vol. x.

diet contain in considerable quantity, not having its peculiar properties annulled, and its proneness to saccharine fermentation being favoured by the warmth and moisture of the stomach, is converted into sugar, which, being readily soluble, is absorbed into the circulation. The sugar, thus absorbed, takes the place of the proper and higher product, Albumen, and being unable to perform the duties of the latter in the system, is eliminated by the kidneys. According to this view, the first object will be, of course, to avoid all saccharine and amylacious articles of food; the second, to introduce into the stomach a highly azotized substance, and, at the same time, by a diffusible stimulant, to exalt the assimilating powers of that organ; both these indications appear likely to be obtained by Ammonia. Whatever may be the therapeutical value of Ammonia in the treatment of Diabetes, and Dr. Barlow's expectations have been by no means universally confirmed, it will be remembered that the more modern theory of the disease refers its production to disordered function of the liver secondary to lesion of the nervous system. Dr. Barlow advises the Sesquicarbonate, in doses of gr. v.—viij., with a few drops of T. Opii, in some light bitter infusion, every 6 hours. At the same time, animal food, together with cruciferous vegetables, as greens, brocoli, turnip-tops, &c., should be taken freely. On this latter point, Dr. Barlow places much stress. He relates cases illustrative of the decided benefit to be derived from this treatment.

149. *In the advanced stages of Pneumonia*, when the inflammatory symptoms have subsided, and it becomes of importance to promote expectoration, Dr. Williams* states that he has seen this indication well answered by the Sesquicarbonate of Ammonia, in doses of gr. v. or more, every one or two hours, as the urgency of the case may require. He advises its exhibition in Infus. Senegæ, and from ɱv.—x. of T. Lobeliæ Inflatæ may be advantageously added.

150. *In Chronic Bronchitis and Catarrhal Affections* occurring in debilitated constitutions, this salt, given in such doses (gr. xxx. —gr. lx.) as to produce an emetic effect, will often be found serviceable. In smaller doses (gr. v.—x.) it is also very useful in that form of Catarrh which Laennec designates "suffocative" (Dr. Williams†). Dr. Copland‡ advises it in small doses (gr. iij. —vj.), combined with Camphor and Ipecacuanha.

151. *In the advanced stages of Croup*, the Sesquicarbonate has been prescribed as a stimulant, expectorant, and occasionally as an emetic, in order to promote the discharge of effused matter. When the patient is greatly debilitated, it may prove useful, but some caution is necessary in its use.

* Cyc. Pract. Med. vol. iii. p. 445.
† Ibid.
‡ Dict of Med. vol. i. p. 297.

152. *In Epilepsy*, Dr. Pereira* states that he has employed the Sesquicarbonate with obvious benefit. It should be given in large doses (gr. x.—gr. xx. for an adult), properly diluted. He found it particularly successful in *hysterical Epilepsy*, and in that form of the disease which Sauvages called *Lypothymia*, and which the patient describes as "dying away." He also regards it as a most valuable remedy in *Hysteria*.

153. *Diseases of the Skin. In Lepra and Psoriasis*, M. Cazenave† successfully employs this salt, in doses of gr. v., gradually increased to gr. xxiv. daily. *In Syphilitic Eruptions*, Dr. Schedel‡ states that he has known this salt succeed when mercurials have failed. The dose gr. lx. daily in Oj. of barley-water. The remedy, he adds, is certainly disagreeable at first, and often causes nausea, but with a little patience the stomach is soon brought to bear it. *In Erysipelas, occurring in debilitated subjects*, it proves highly useful. Dr. Watson§ observes that, after a preliminary purgative, he commences the use of this salt, and that, generally speaking, a large proportion of his cases recover. It is also strongly recommended by Mr. Wilkinson (see sect. 155).

154. *In Scarlet Fever*, the Sesquicarbonate is perhaps the most valuable remedy we possess. It was originally prescribed by Withering, and has been extensively used by Drs. Peart, Strahl, Bodenius,‖ Rieken, &c. Dr. Rieken¶ considers that it enters into the blood, and ameliorates its crasis, and also removes the depression of the nervous system. He speaks in the highest terms of its efficacy, and recommends that ʒj. be dissolved in Aq. fʒvj., and that of this fʒj.—fʒiv. be given every one or two hours, according to the strength of the patient and the urgency of the case. It was found most useful in the nervous and inflammatory forms. More recently, it has been strongly advised by Mr. Wilkinson,** who has employed it successfully in above 200 cases. He does not depend, he states, upon its diuretic, nor its diaphoretic qualities, but believes that it possesses the power of increasing the strength of the arterial action, at the same time that it diminishes its frequency; that it supports the vis vitæ, without increasing the heat and irritability of the system, and by such means, counteracts the tendency in Scarlatina Anginosa and Maligna to ulceration and sloughing, and all the other evils which sometimes attend this disease. It should be given as advised by Rieken. Further evidence, if necessary, in favour of this remedy is adduced by Mr. C. Witt.††

* Mat. Med. vol. i. p 456.
† Med. Times, Aug. 9, 1851.
‡ Lib. of Med. vol. i. p. 440.
§ Lectures, vol. ii. p. 833.
‖ Med. Chir. Rev. No. lxxx.
¶ On the Use of Carb. of Ammonia in Scarlatina, 8vo. 1842.
** Lond. Journ. of Med. Sept. 1851.
†† An Effectual Remedy in Scarlet Fever. London: 1862.

Dr. B. W. Richardson also has found the greatest benefit from its employment. He gives it in 5 gr. doses every one or two hours.

155. *In Rubeola*, *Urticaria*, *Roseola*, *Erythema*, and in other diseases of the same class, Mr. Wilkinson also bears witness to the value of the Sesquicarbonate. He states that for seventeen years he has administered this remedy as advised in the last section, and that he has not only never lost a patient in the above diseases, but has never had a case of the kind that has ever appeared dangerous, or that has given him a moment's anxiety. *In Erysipelas* he found it no less successful; and in this disease, and also in *Urticaria*, the lotion originally proposed by Peart may be employed with advantage to allay the irritation of the surface. ℞ Ammon. Sesquicarb. ʒj., Plumb. Acet. ʒj., Aq. Rosæ f ʒviij., M. ft. lotio.

156. *In Acute Glanders* it proved successful in a case which came under the care of Mr. Wilkinson.* The treatment employed is thus summed up :—1, An incision into each of the Whartonian ducts; 2, an emetic of Ipecacuanha; 3, Sesquicarbonate of Ammonia in water, hourly, as concentrated as it could be swallowed; 4, an opiate at bedtime, with wine and nourishment in such quantities as the patient could be prevailed upon to take. He places great stress upon the Ammonia having been given in a concentrated form.

157. *In Puerperal Insanity*, when great debility exists, together with defective subcutaneous circulation and cold extremities, the Carbonate of Ammonia (gr. vj.—viij.) with Camphor, may be given every third hour, with advantage. (Dr. Prichard.†) *In Phlegmasia Dolens*, the Sesquicarbonate in full doses, according to Dr. Mackenzie,‡ is often valuable, especially when there is great prostration.

158. *In Scrofula*, the late Dr. Armstrong§ found that in those cases attended by much debility, a languid state of the circulation, and deficient cutaneous secretion, were much benefited by the use of this salt. He speaks of it as a valuable resource in these cases.

159. *In Mercurial Erethism*, no internal remedy is more to be trusted than the Sesquicarbonate, in conjunction with Camphor and other stimulants.

160. *In Drunkenness*, after the stomach has been emptied, the Sesquicarbonate may be given internally with advantage. Its application to the nostrils is also beneficial. It is inferior to the Oxide of Zinc.

* Op. cit.

† Lib of Med. vol. ii p. 142.

‡ On Phlegmasia Dolens. London: 1862.

§ On Scrophula, 8vo. 1812.

161. Ammoniæ Citras. Citrate of Ammonia. A solution of this salt may be extemporaneously obtained by saturating gr. xx. of the Sesquicarbonate of Ammonia with fl. drs. vj. of Lemon-juice, or with gr. xxvj. of Citric Acid in solution.

Med. Prop. and Action. Febrifuge and refrigerant: it is best taken in the form of effervescing draughts, as above. It will frequently remain on the stomach when other medicines are rejected.

162. *Therapeutic Uses. In Gastric Irritation, depending upon an atonic condition of the mucous follicles,* the Citrate of Ammonia, in the form of an effervescing draught, is frequently productive of marked benefit.

163. *In Diabetes,* Dr. Prout* considers the Citrate as the best diaphoretic we can employ. It requires to be steadily persevered in, and should be conjoined with the use of Dover's Powder, or Ipecacuanha.

164. *In the later stages of Inflammatory and Febrile attacks,* the Citrate, given whilst effervescing, is not only agreeable and refreshing, but it acts as a refrigerant and diuretic. *In Scarlet Fever* it is favourably spoken of by Dr. Watson.† If the pulse is feeble and without hardness, he advises it to be given with an excess of Ammonia. In those cases, it was a favourite mixture of the late Dr. Cheyne.

165. Ammoniæ Formias. Formiate of Ammonia. A combination of 1 eq. of Formic Acid and 1 eq. of Oxide of Ammonium. NH_4O, C_2HO_3.

Med. Prop. and Uses. A general stimulant. It has lately been used by Dr. Ramskill‡ as a *stimulant* in cases of *chronic paralytic disease, accompanied by general torpor.* He finds it of greatest use in cases of reflex paralysis; next in those cases, where, from disuse, the muscles and nerves have become unable to convey commands of the will, or to execute movements. It is of equal use in paralysis of sensation as of motion. It is *contra-indicated* wherever there is reason to suppose activity in or about the seat of the original lesion in the nervous centres, and in all cases of irritable stomach whether the cause be cerebral or not. If given in larger doses than gr. v. it produces vomiting. When it agrees, its administration is followed by a feeling of warmth at the epigastrium. In some forms of *Epilepsy* it appears to have done good, in others harm. Dr. Ramskill's experience of its use warrants a further trial of this salt.

Dose, gr. v. in water three times a day.

166. Ammoniæ Hydrochloras. The Hydrochlorate or Muriate of Ammonia, Chloride of Ammonium, Sal Ammoniac. NH_4Cl. A compound of Hydrochloric Acid 31·95, and Ammonia 68·05 in 100 parts.

* On Stomach and Renal Dis. 3rd Ed.

† Lectures, vol. ii. p. 822.

‡ Med. Times and Gaz. Jan. 23, 1864, p. 90.

Med. Prop. and Action. The Hydrochlorate is more frequently employed internally by British practitioners than formerly; and the Germans, who use it extensively in a variety of diseases, entertain a high opinion of its alterative and resolvent properties, and consider that its action on the system closely resembles that of mercury. From some interesting experiments with this salt Dr A. Lindsay* considers that it is deserving of a high place amongst our more valuable alterative, resolvent, and liquefacient remedies. In small doses it rather constipates, but in larger ones it purges like other salts (see also sect. 128). In over-doses it acts as an irritant poison. Externally, it is used as a discutient application in *Hydrocele*, or (from the cold produced during its solution) as a cold lotion in *Fevers, Hernia*, &c. Sir A. Cooper's formula was, Potas. Nit., Ammon. Hydrochlor. āā ℥v., Aq. f℥xvj. M. It is also used as a gargle (oz. ss —Aq. fl. oz. xij.).

Dose, gr. v. — gr. xxx. in solution repeated every two to six hours. The addition of liquorice serves to disguise the taste.

Incompatibles. Sulphuric and Nitric Acids; Potassa Lime and Magnesia, Carbonates of Lime and Magnesia, Acetate of Lead, Nitrate of Silver.

167. *Therapeutic Uses. Abscess of the Mamma. Milk Abscess.* The following lotion, originally prescribed by Justamond,† has been found in many cases of great service:—℞ Ammon. Hydrochlor. ℥j., Spt. Rosmarini Oj, M. Linen rags, wetted with the lotion, to be kept continually to the part. It is chiefly applicable in cases of induration of the mamma, after the abscess has suppurated. *In other Glandular Enlargements* and *Incipient Abscesses* it is a very valuable application, and Dr. Lindsay found *Indolent Bubo* speedily subside under the application of a hot solution (℥ij. ad Aq. f℥j.).

168. *Acne Simplex.* In obstinate cases, I have seen much benefit from the use of the following formula of Dr. Todd:‡—℞ Ammon. Hydrochlor. ℥j., Alum. ℥iij., Potass. Sulphuret. ℈j., Aq. Ros. lb. ss., M. ft. lotio.

169. *Albugo, White Opacity of the Cornea.* Scarpa advises the annexed formula in these cases. In some obstinate cases, he found it aid the process of absorption:—℞ Ammon Hydrochlor. ℈ij., Cupri Acet. gr. iv., Aq. Calcis f℥iv., M. ft. collyrium. It is particularly adapted for Albugo, when supervening upon an attack of Small-pox.

170. *Aphonia.* A case is related by Dr. Gerner,§ in which a young lady, in consequence of exposure to cold, entirely lost her voice. Numerous remedies were tried in vain, for three months. She, at last, completely recovered her voice in three days from the inhalation of Ammoniacal vapour, disengaged from a mixture of a solution of the Hydrochlorate of Ammonia and Carbonate of Potash.

171. *Ecchymosis of the Eye, vulgo Black Eye.* A very good application, when black Bryony cannot be procured, is the Hydrochlorate of Ammonia in solution, mixed with bread or

* Glasgow Med. Journ., 1856.
† Cooper's Surg. Dict. 7th Ed.
‡ Cyc. Pract Med. vol. i. p 26.
§ Brit. and For. Med. Rev. 1839

linseed, so as to form a soft poultice. (Tyrrell.*) It tends to prevent subsequent discoloration in all cases of *bruises and sprains*.

172. *Face Ache. Tic Douloureux. Rheumatic Affection of the Face.* Dr. Watson † states that he has found the Hydrochlorate, in doses of ℈ss., repeated four times daily, of great service in numerous cases, particularly when the pain partakes more of a rheumatic than a neuralgic character. It does not always succeed, he adds, but it often does. If the pain does not yield after four doses, you may cease to expect any benefit from it. Dr. Ebden‡ has found it most successful in many cases, and my own trials with it have been most satisfactory. With regard to its use in various forms of *Nervous Headache*, Dr. Barrallier§ found that it constantly dissipates fits of *Idiopathic Headache, Headache consecutive on Menorrhagia, Headache dependent on functional derangement of the stomach*, and *that supervening upon fevers*, whilst it is powerless to relieve hemicrania dependent on irregularity or suspension of menstruation. By others, however, it has been found of great service in the headache which accompanies amenorrhœa. It is only useful if given when the pain is most intense.

173. *Amenorrhœa.* This salt is strongly recommended by Sundelin, as an emmenagogue, in those cases in which the disease depends on, or is connected with, inactivity of the Uterus. (Pereira.) Of late years it has been largely given, with satisfactory results, in some of the London Hospitals, in amenorrhœa arising from functional inactivity.

174. *Hydrocele.* A radical cure may sometimes be effected by the topical application of a strong discutient lotion. This plan of treatment is chiefly, if not solely, adapted to recent cases, which have arisen from external injury, and those occurring in children. It was first proposed by the late Mr. Keate, in 1788; and was successfully employed, in some cases, by Sir A. Cooper. The lotion employed by both these surgeons was a solution of the Hydrochlorate of Ammonia. Mr. Bransby Cooper‖ advises the use of the following lotion, a modification of that of Sir A. Cooper:—℞ Ammon. Hydrochlor. ℥j., Liq. Ammon. Acet. (Ph. L.), Spt. Vin. Rect. āā f℥j., Aq. Dest. f℥iv. M. This, after a few applications, produces excoriation of the scrotum, and aids the process of absorption. *In Enlarged Prostate* the Hydrochlorate internally (gr. xv.—gr. xxx. three or four times a day) has been found very valuable. M. Vanoye¶ relates two cases cured by it.

175. *Chronic Pleurisy, Chronic Inflammation of the Lungs, and*

* On Diseases of the Eye.
† Lectures, vol. i. p. 717.
‡ Ind. Aun. of Med. Sci., April, 1854.
§ Bull. Gén. de Thérap. Ap. 15, 1859.
‖ Med. Gaz. March 2, 1849.
¶ Bull. Gén. de thérap. 1852, p. 521.

Chronic Congestion of the Mucous Membranes. In these cases, Sir G. Lefevre* speaks highly of the value of the Hydrochlorate of Ammonia; it is a popular remedy with the German physicians. He recommends the following formula, having derived decided benefit from its use:—℞ Ammon. Hydrochlor. ʒj., Ext. Glycyrrh. ʒiij., Ant. Tart. gr. ij., Aq. Dest. f℥viij., M. Dose, a tablespoonful every two or three hours. When the stomach is irritable, the Antimony may be omitted. Dr. Williams advises its combination with decoction of Senega.

176. *Dropsical Affections.* The Hydrochlorate has been little employed in England in these affections, but it is held in high esteem in various parts of Europe. It is stated to be particularly useful in *dropsy dependent upon hepatic disease;* and also in *Ovarian dropsy.* In the latter affection, where there are so few remedies of even reputed efficacy, it should meet with a fair trial. It is favourably spoken of by Dr. Copland.† In passive cases, he advises its combination with warm diuretic infusions.

177. *Scirrhus of the Stomach.* Amongst others who strongly advocates the use of the Hydrochlorate in this affection, is Trussen.‡ He states that he derived decided benefit from it, in doses of gr. xv. every two hours, combined with extract of Liquorice. It is reported to relieve the *vomiting* and *heartburn*, so constantly attendant on this disease, more speedily and uniformly than any other remedy.

178. *Hæmorrhages.* *In Hæmoptysis,* Dr Copland§ advises this salt, in combination with Hydrochloric Acid, thus:—℞ Ammon. Hydrochlor. ʒiss., Acid Hydrochlor. f℥ss., Decoct. Hordei Co. Oj. M., Cap. coch. amp. iij. 2dis vel 3tiis horis. Lentin advises it to be taken in ʒss. doses, every two hours, with ʒss. Ext. Glycyrrh. It appears to be chiefly applicable to passive cases, when the vital powers are depressed. *In Hæmatemesis,* a formula similar to the above has been employed with advantage. *In Uterine Hæmorrhage,* Dr. Copland‖ considers that it will prove serviceable, especially in cases of debility, and when the discharge is draining or remittent. It may then be given with Cinchona or small doses of Opium.

179. *In Typhus and Typhoid Fevers,* the Hydrochlorate has been advised by Hoffman, Jacob, Munro, Hillary, M'Causland, Gmelin, and others. Dr. Copland states that he has frequently employed it, and Dr. Conwell found it of great service in the fevers of India. Schmidt prefers it in those cases attended by diarrhœa. It is rarely used at the present day. (Copland.) *In the Diarrhœa of Fever,* it is recommended by Hufeland.¶

180. *In Intermittent Fevers,* it was formerly employed, and is

* Thermal Comfort, 8vo. Lond. 1844.
† Dict. of Med. vol. i. p. 617.
‡ Hufeland's Journal, 1844.
§ Med. Dict. vol. ii. p. 87.
‖ Ibid. p. 117.
¶ Stark, Archiv. b. i. st. 3, p. 39.

stated to be capable of arresting the fits. Brocklesby and Pringle thought favourably of it, when the disease was of an inflammatory character. It requires to be given in large doses. It is now rarely prescribed.

181. *In Hooping Cough*, the Hydrochlorate was recommended by Stoll at an early stage, with Oxymel. Dr. Copland* states that he has found it an excellent refrigerant, anti-spasmodic, and tonic, in several instances. It might be advantageously combined with Ipecacuanha.

182. *In Prurigo.* In order to allay the intense itching, a solution of the Hydrochlorate occasionally proves useful. The following ointment may also be employed:—℞ Ammon. Hydrochlor. ʒj., Pulv. Hellebor. Alb. ℥ss., Adipis ℥iij. M. (E. Wilson.†)

183. *To enlarged flabby Uvula* Dr. Addison highly commends the topical application of the powdered Hydrochlorate. In this manner the cough, which is caused by the uvula falling upon the back of the pharynx, is often removed. (Nevins.‡)

184. *Rheumatism of the Muscles of the Chest, and Pulmonary Diseases.* Dr. Paris,§ in these cases, recommends a plaster composed of Lead plaster ℥ss., Soap ʒij., Hydrochlorate in fine powder ʒss.: the two former are to be melted together, and when nearly cold, the salt is added. Its efficacy depends upon the evolution of ammoniacal gas. It requires to be renewed daily. The same plaster has been found useful as a discutient, *in Chronic swellings and indurations.*

185. *In Gonorrhœa and Leucorrhœa,* a solution of the Hydrochlorate (gr. lx.—oz. ss. ad. Aq. Oj.) has occasionally been used as an injection. It has also been used as a lotion in *Scabies* and *Ulcers. In Snake Bites*, Mr. Minas‖ extols as an internal remedy the following:—℞ Ammon. Hydrochlor. Calcis Chlorinat. āā ʒj. Aq. f℥xxiv. boiled to f℥xx.: strain. Of this fʒj. to be given every half-hour for about six hours, after which the interval is increased, and so continued for twenty-four hours. Excision of the bitten part, cauterization with Nitrate of Silver, ligatures above the wound are also to be had recourse to, and the patient should on no account be allowed to sleep for the first twenty-four hours.

186. Ammoniæ Hydrosulphuretum. Hydrosulphuret of, or Hepatized Ammonia. Bihydrosulphate of Ammonia, NH_3, 2HS, or Hydrosulphate of the Sulphide of Ammonium, NH_4S,HS. Prepared by saturating a solution of Ammonia with Hydrosulphuric Acid Gas. A compound of

* Med. Dict. vol. ii. p. 249.
† Diseases of the Skin, p. 271.
‡ Translation of Pharmacopœia, 1851, p. 136.
§ Pharmacologia.
‖ Indian Ann. of Med. Sci. Jan 1859.

Ammonia 33·33, Hydrosulphuric Acid 66·66 in 100 parts. It is only admitted into the British Pharmacopœia as a test solution. It was officinal in the Dublin Pharmacopœia.

Med. Prop. and Action. This salt has been said to exercise a powerfully sedative action on the heart and arterial system; at the same time it improves the tone of the digestive organs, increases the appetite, promotes the urinary secretion, and acts powerfully on the skin. Its administration requires great caution, as, even in small doses, it causes occasionally, vomiting, vertigo, and convulsions.

Dose, gutt. iij.—vj. thrice daily, largely diluted.

187. *Therapeutic Uses. Diabetes.* This salt was first proposed by Mr. Cruikshank, with a view of diminishing the morbid appetite, and the powerful action of the digestive organs, which occurs in Diabetes. Dr. Rollo* advises its use in the same cases; but it has fallen into comparative disuse, partly from the uncertainty of its operation, and partly from the dangerous effects which occasionally attend its use.

188. *Hypertrophy of the Heart.* The Hydrosulphuret has been extensively employed by Drs. Marsh,† Thwaites,‡ and Graves,§ as a means of lowering the action of the heart, without inducing much debility. It does not appear to have sustained its character, being now rarely employed. It was given in doses of gutt. iv.—v., gradually increased to xx.—xxx., largely diluted with water. Dr. Graves‖ observes, that in no instance did it exert the slightest effect upon the heart's action, or on the pulse.

189. *Phthisis.* Dr. Rollo advised the use of the Hydrosulphuret in Phthisis, on a theory of its chemical action. It has also been recommended by Drs. Armstrong, Newton, and Marsh, but it has never come into general use, and is too powerful in its action for ordinary cases. It appears to act powerfully on the pulmonary mucous membrane.

190. *Cholera.* Mr. A. Blacklock, of the Madras service, advises the employment of enemas of the Hydrosulphuret of Ammonia (f℥j. ad Aq. Oij.). It forms part of "the Sulphur treatment" of Cholera (see SULPHUR).

191. AMMONII IODIDUM. Iodide of Ammonium. NH_4I. Hydriodate of Ammonia. Obtained by the action of Iodine, on a solution of the Hydrosulphuret of Ammonia, or by saturating liquid Hydriodic Acid with Caustic Ammonia and evaporating to crystallization. It is a very deliquescent salt, and requires to be kept in well-stoppered bottles.

Med. Prop. and Action. Alterative, tonic, and anti-syphilitic. Gamberini in some cases carried the dose to grs. xvj. with no greater inconvenience

* On Diabetes, 2nd Ed. p. 28.
† Dub. Journ. 1832.
‡ Ditto, Nov. 1832, p. 185.
§ Dub. Journ. Nov. 1832, p. 23.
‖ Clin. Lect. 1848, vol. ii. p. 192.

than a sense of heat in the throat and stomach. It closely resembles the Iodide of Potassium, but is more powerful. It sometimes acts as a diuretic. Externally it is used in the form of ointment (gr. xx.—gr. lx. ad. Ung. oz. j.), which should be freshly prepared when required for use, as it decomposes by exposure to the air.

Dose, gr. j.—gr. iij., or more.

192. *Therapeutic Uses.* As a remedy in *Skin Diseases* it was first proposed by Biett, and Dr. Pennock* has recorded several cases of *Lepra* and *Psoriasis* cured by its means. It appears especially adapted for *Syphilitic Affections of the Skin.*

193. In *Syphilitic Affections* it was first employed by Dr. B. W. Richardson, who reported favourably of its operation. More recently it has been systematically tried by Dr. Gamberini† who considers—1. That it is suitable for all cases in which the Iodides of Potassium and Sodium are employed; 2. That it leads to a rapid cure; 3. That there is great tolerance of the remedy; 4. That employed in friction with olive oil (gr. iij. ad Ol. ℥j.) it causes the disappearance of *Nocturnal Syphilitic Pains;* 5. That under its internal use *Indurations consecutive to Chancre* disappear, as do also *Indurated Glands of the Groin;* 6. That *Arthralgia, Rheumatoid Affections, Periostitis, Enlarged Glands,* and *Papulo-Vesicular Syphilitic Eruptions,* are the forms of syphilis most readily cured by this salt; 7. The signs of intolerance are a sense of burning in the throat, and heat of the stomach, but these rapidly disappear on the suspension of the medicine for a couple of days. It seems well worthy of more extended use.

194. *In Scrofula, attended with Glandular Enlargement,* or *Incipient Phthisis,* and in *Chronic Rheumatism,* Dr. Richardson used the Iodide with advantage. *In Enlarged Tonsils,* he found a solution of the Iodide (ʒss.) in Glycerine (f℥j.) very efficacious. It was applied every night by means of a large camel's hair brush.

195. Ammoniæ Liquor Fortior. Strong Solution of Ammonia. Ammoniacal Gas dissolved in water and constituting 32·5 per cent. of the solution. Sp. Gr. 0·891.

Ammoniæ Liquor. Solution of Ammonia. Is formed by adding to every Oj. of the Stronger Solution Oij. of Water. Sp. Gr. 0·959.

Offic. Prep. 1. Liniment. Ammoniæ. (Sol. of Ammonia fl. oz. j., Olive Oil fl. oz. iij.)
2. Liniment. Camphoræ co. (See Camphora.)

* Amer. Journ. of Med. Sci., Feb. 1835.

† Journ. de Pharm. et de Chim. Nov. 1859.

3. Liniment. Hydrargyri. (See Hydrargyrum.)
4. Spiritus Ammoniæ Aromaticus. (See Ammon. Sp. Arom.)

Dose of Liquor Ammoniæ, (not Fortior) ℥x.—℥xxx. properly diluted. The dose of Liq. Ammon. Fort. is one-third of that amount.

Med. Prop. and Action. The vapour, particularly of the stronger solution, is powerfully irritant to the mucous membranes of the air-passages, the nostrils, and the conjunctiva. When inhaled, or taken internally, largely diluted, it proves an excellent stimulant and restorative *in syncope, in hysteria, in the collapse of Cholera*, and in all cases where the vital powers are much depressed. It is one of the best antidotes in poisoning by Hydrocyanic Acid, Digitalis, and other sedative poisons. It possesses powerful antacid properties. When larger doses of the solutions are swallowed, they act as violent corrosive poisons. The Carbonate of Ammonia may be substituted, in many cases with advantage, for the Liq. Ammoniæ. *As a vesicant and counter-irritant*, Liq. Ammoniæ is a valuable and efficacious application. It is the basis of Dr. Granville's formulæ. A simple mode of applying it is as follows:—Fill the lid of a wooden pill-box with circular pieces of lint or linen till they are above the level of the rim. Pour the strong Liquor on the lint so as to saturate the folds; the box is then to be instantly inverted over the affected part, and held on with firm but gentle pressure. At first it feels like a piece of ice; in a minute or less, a sense of heat and tingling is experienced; then a burning heat, and in a few minutes (from two to five), a blister is raised.* M. Gondret's vesicating ointment, commonly employed in France, is composed of Lard ℥j., Oil of Almonds f℥ss., Liq. Ammon. Fort. f℥v. The two first are melted together with a gentle heat, then poured into a wide-mouthed bottle, and the Ammonia added. It should be constantly agitated till it becomes cold. Counter-irritation, thus produced, is stated to be very successful in relieving the pain in *neuralgic, convulsive*, and *spasmodic* diseases. It is preferable to Cantharides as a vesicatory, both on account of the rapidity of its operation and its not affecting the urinary organs.

Incompatibles. All Acids and Salines, Solutions of all Earths, except Lime and Barytes.

196. *Therapeutic Uses. Amenorrhœa and Chlorosis.* Dr. Ashwell† states that he has found a mixture of f℥j. of Liq. Ammon. in Oj. of Milk, injected into the vagina daily, very efficacious in Chlorosis. It has also been successfully employed by Lavagna in Amenorrhœa, and it has been favourably spoken of by Dr. Blundell.

197. *Amaurosis depending upon decreased sensibility of the nerve.* In these cases the vapour of the strong solution, directed properly against the eye, is occasionally of great service. It should be applied in a proper vessel, sufficiently near the eye to cause a smarting of the organ, together with a degree of redness and a copious secretion of tears. It may be repeated every three or four hours. (Scarpa.)

198. *Asthma.* Rayer advises the application of Liq. Ammoniæ to the velum palati in cases of simple idiopathic Asthma. He dips a roll of lint, four inches long, into a mixture of 4 parts of the solution and 1 of water, presses out the superfluous fluid, and immediately applies it for a few seconds to the velum palati. This, at first, causes a feeling of suffocation with cough and

* Med. Chir. Rev. vol. lviii. p. 467. † On Diseases of Women, 8vo, 1840.

much expectoration. This soon passes off, and great relief is experienced. It should be applied weak at first, and may be repeated if necessary. Great care is required not to apply the mixture to the back part of the pharynx,—such an application may prove serious or even fatal. M. Rayer states that in 100 cases he has employed this treatment with success, and without any unpleasant consequences. It is, however, rarely employed.

199. *Apoplexy.* In atonic cases, in which bleeding is contra-indicated, diffusible stimulants may be given with advantage. Of these, one of the best is Liq. Ammoniæ (ɱxij.—xv.) in water. The vapour may also be applied to the nostrils.

200. *Chronic Bronchitis.* Dr. Williams * advises the subjoined embrocation as an efficacious and permanent counter-irritant:—℞ Liq. Ammon. fʒss. —fʒj., Ol. Amygd. fʒss., Aq. fʒij., Ol. Rosmarini fʒj., M. This formula may also be advantagcously employed in *Chronic Pleuritis, Phthisis,* and other *chronic pulmonary affections.*

201. *Bites of venomous Snakes and Insects.* Ammonia, as a remedy for snake bites, was first introduced into France by Jussieu,† in 1747, although it appears that Dr. Mead had employed it in England previous to that date. It is certainly a powerful nervine stimulant in these cases, and is more efficacious than Brandy or any other stimulant. It may be given internally, in doses of ɱx.—xx., in water or wine, every half-hour or oftener, if the urgency of the symptoms require it. Externally, it should be rubbed into and about the bitten part. The patient should not be allowed to lie down or go to sleep; he should be kept moving about, and his fears allayed in every possible way. *In Bites of Scorpions, Centipedes, Mosquitoes, and other venomous Insects,* a Liniment composed of equal parts of Liq. Ammoniæ, Ol. Olivæ, and T. Opii. well rubbed over the bitten part, affords great relief. A few drops of Liq. Ammoniæ in water may also be given internally.

202. *Epilepsy, Congestion of the Brain arising from Debility.* Dr. Hope ‡ advises, in these cases, the internal use of volatile diffusible stimulants. Of these, he has found the subjoined formula by far the most efficacious: ℞ Liq. Ammon. ɱxij., Aq. Menth. Vir. fʒiss., M. ft. haust. If taken at the first warning of an attack, it seldom fails to arrest its supervention. Pereira § quotes a case in his own practice, and another in that of Pinel, in which the inhalation of ammoniacal vapour immediately after the first warning of an attack, apparently averted its occurrence.

203. *Pruritus Pudendi.* Dr. Dewees ‖ relates a very obstinate case of Pruritus in a female, which completely yielded to injec-

* Lib. of Med. vol. iii. p. 81.
† Hist. de l'Acad. des Sciences, 1747.
‡ Lib. of Med. vol. ii. p. 19.
§ Mat. Med. vol. i. p. 444.
‖ On Dis. of Females, 6th Ed. p. 50.

tions into the vagina of a mixture of f℥ss.—f℥j. of the solution in Oss. of water. "It succeeded like a charm." He adds that he has since successfully employed it in numerous cases. It should be freely injected into the vagina.

204. *Tic Douloureux, Neuralgic Affections of the Face.* M. Ducros* and other French physicians have found that Liq. Ammoniæ, applied with a camel's-hair brush to the palate and gums, so as to cause a profuse discharge of tears and saliva, rapidly cured some obstinate cases of Tic Douloureux. It was also found productive of great benefit in the same cases, if given internally. The best mode of administering it is to mix from gutt. xx.—xl. in a cupful of thick gruel, taking care that they are thoroughly incorporated: this should be taken at bedtime. It should be sufficiently strong to produce a profuse discharge of saliva and tears. Applied externally, as a counter-irritant (sect. 195), it often affords striking relief.

205. *Chronic Hoarseness, Dryness of the Throat from deficiency of secretion,* and *Chronic Asthma.* In these cases, Mr. Smee† advises the inhalation of the vapour of diluted Liq. Ammoniæ, in order to promote the secretion of a watery vapour from the mouth, fauces, trachea, and bronchi.

206. *In Ringworm,* Mr. E. Wilson‡ states that the remedy which he has found most useful is the Linimentum Ammoniæ, accommodating the proportion of alkali to the amount of stimulation which it is desired to effect.

207. *In Baldness, Alopecia,* Mr. E. Wilson§ states that, for several years, he has used the following stimulating wash, and that it is the best with which he is acquainted:—℞ Ol. Amygd. Dul., Liq. Ammoniæ, āā f℥j., Spt. Rosmarini, Aq. Mellis, āā f℥iij., M. ft. lotio.

208. *In Asphyxia,* ammoniacal vapour, used weak at first, has, in some cases, proved effectual in restoring animation.

209. *Febrile and Inflammatory Diseases.* Pereira‖ enumerates the following instances in which the internal use of Ammonia proves serviceable, as a stimulant and sudorific. *In continued Fevers,* which have existed for some time, and where all violent action has subsided, and the brain does not appear much disordered, it is occasionally of great service. Its diaphoretic action should be promoted by diluents and warm clothing. (According to Richardson, however, Ammonia is contra-indicated in fevers of a typhoid type. See article Ammonia.) *In intermittent Fevers,* it is sometimes of advantage, given during the cold stage, to hasten its subsidence. *In the Exanthemata,* when the eruption

* Med. Chir. Rev. Jan. 1844.
† Med. Gaz. April 7, 1843.
‡ On Dis. of the Skin, 1851, p. 448.
§ Op. cit. p. 430.
‖ Mat. Med. vol. i. p. 444.

has receded from the skin, and the extremities are cold, it is sometimes of great benefit, on account of its stimulant and diaphoretic properties. When the recession arises from, or is connected with, an inflammatory condition of the bronchial membrane, it is inadmissible. The usual treatment must then be adopted. *In some Inflammatory Diseases*, especially *Pneumonia* and *Rheumatism*, where the violence of the vascular action has been reduced by proper evacuations, and where the habit of the patient is unfavourable to the loss of blood, Ammonia has proved serviceable. In combination with decoction of Senega, Dr. Pereira has found it valuable in chronic pulmonary affections.

210. AMMONIÆ PHOSPHAS. Phosphate of Ammonia. A combination of 3 eq. of Oxide of Ammonium with 1 eq. of Tribasic Phosphoric Acid. $3NH_4O, PO_5 + 5HO$.

Med. Prop. and Action. This salt has been recommended as an excitant, diaphoretic, and discutient; also, *as a solvent for Uric Acid calculus*, and as a remedy for diseases, acute and chronic, connected directly with the uric acid diathesis. (Dunglison.)

Dose, gr. v.—gr. xx. thrice daily.

211. *Therapeutic Uses. Gout and Rheumatism.* Dr. Buckler,* of Baltimore (U.S.), has published four cases of these diseases, in which the Phosphate of Ammonia, in doses of ʒj. daily, largely diluted, proved successful. The theory of its action is that it decomposes the insoluble Urate of Soda, which is the basis of gouty deposits, and converts it into Phosphate of Soda and Urate of Ammonia, both soluble salts, which may be ready eliminated by the secretions. Dr. Garrod has observed much good from its long continued employment in chronic conditions of the gouty habit.

AMMONIÆ SESQUICARBONAS. (See AMMONIÆ CARBONAS)

212. AMMONIÆ SPIRITUS AROMATICUS. Aromatic Spirit of Ammonia. Spirit of Sal Volatile. *Prep.* Carbonate of Ammonia oz. viij., strong Sol. of Ammonia fl. oz. iv., Volatile Oil of Nutmegs fl. drs. iv., Oil of Lemon fl. drs. vj., Rect. Sp. Ovj., Water Oiij. Mix and distil seven pints. Sp. Gr. 0·870.

Med Prop. and Action. Stimulant. On account of its pleasant smell and taste, it is generally preferred to Liq. Ammoniæ, to which, though much weaker, it bears a close resemblance in medicinal properties.

Dose. ℥xx.—fl. drm. j. in water.

Offic. Prep. 1. Tr. Guiaci Ammoniata. (See Guiacum.)
2. Tr. Valerianæ Ammoniata. (See Valeriana Officinalis.)

* Med. Times, vol. xv. 1847

213. *Therapeutic Uses.* Similar to those of Liq. Ammoniæ. *In languor, syncope, hysteria,* and *nervous debility,* it proves very serviceable. *In the flatulent colic of children* (gutt. ij.—v. in milk), it affords more speedy relief than any other remedy. *In Heartburn* and *acidity of the primæ viæ,* it also proves speedily effectual.

214. AMMONIÆ SPIRITUS FŒTIDUS. Fetid Spirit of Ammonia, Ph L. E D. A Solution of the Volatile Oil of Assafœtida in Spirit of Ammonia.

Med. Prop. and Action. Stimulant and anti-spasmodic.

Dose. ℥xx.—fl. drm. j.

215. *Therapeutic Uses. In Hysteria, and in the flatulent colic of hysterical women,* it may be given with great advantage, in doses of fl. drm. ss.—fl. drm. j. In other cases, it is inferior either to the Aromatic Spirit or Assafœtida, given singly.

216. AMMONIÆ VALERIANAS. Valerianate of Ammonia. Obtained by the action of Valerianic Acid on a strong Solution of Ammonia. It is obtained in a crystalline form, but as it is very deliquescent, and thus becomes uncertain in its operation, it has been proposed to keep it in solution as better suited for medicinal use.

Med. Prop. and Action. Nervine stimulant and anti-spasmodic.

Dose, gr. ij.—gr. viij. dissolved in water.

217. *Therapeutic Uses.* As a remedy in *Neuralgia* it was first proposed in 1856 by M. Déclat,* of Paris, and its efficacy has been attested by several writers. Some severe cases illustrative of its value are recorded by Dr. O'Connor.† The smallest dose of Bastick's solution which he employed was equal to gr. xx. of the salt given in infusion of Calumba or infusion of Valerian. It has also been used in some cases of *Hysteria, Chorea, Epilepsy,* and other *Nervous Affections,* with apparent benefit. It merits further trial.

218. AMMONIACUM. Gum Ammoniacum. The Gum Resin of Dorema Ammoniacum (Don); of Heracleum Gummiferum (Willd.); of Ferula Tingitana (Lindley). *Nat. Ord.* Umbelliferæ. *Linn. Syst.* Pentandria Digynia. *Source,* Bombay, having been previously imported there from Persia, and the Punjab.

Med. Prop. and Action. Stimulant, expectorant. In asthenic pulmonary diseases, it proves useful, by promoting expectoration, when this is deficient, and by assisting expulsion when secretion accumulates in the air-passages, and

* Ann. de Thérap. 1857, p. 46. † Lancet, Jan. 18, 1862.

the patient has not strength to expectorate. It is best given in the form of mixture in doses of fl. drs. iv.—fl. oz i. Care should be taken that the gum is thoroughly triturated. Externally it is applied in the form of plaster, *to indolent swellings.*

Offic. Prep. 1. Emplastrum Ammoniaci cum Hydrargyro. (Contains Ammoniac oz. xij. ; Mercury oz. iij. ; Olive Oil fl. drm. j. ; Sulphur, grs. viij.)
2. Emplastrum Galbani. (See Galbanum.)
3. Mistura Ammoniaci. (Ammoniac oz. ½ ; Distilled Water fl. oz. viij. Triturate and strain.) Dose, fl. oz. ss.—fl. oz. j.
4. Pilula Scillæ composita. (See Scilla.)

Dose of Ammoniacum, gr. v.—xx. in pill or emulsion.

It is contra-indicated in all acute inflammatory, or irritated states of the lungs and mucous surfaces generally.

219. *Therapeutic Uses. In Spasmodic Asthma,* Ammoniacum often proves highly serviceable, relieving the symptoms in a remarkable manner. It is best given combined with Tinctura Scillæ, with a small portion of Hyoscyamus or Conium. Plasters of Ammoniacum applied to the chest afford relief.

220. *In hysterical Asthma* it also proves most useful. It should be combined with equal parts of Assafœtida.

221. *In the Chronic Catarrh of Old Age,* the following formula is a popular one in the United States. It is said to be very efficacious. ℞ Gum Ammon. ʒij., Acid Nit. Dil. fʒij., Mist. Acaciæ fʒviij. Dose, fʒj.—fʒiss., in any bland fluid, every two or three hours. It is chiefly useful when much expectoration has accumulated in the air-passages.

222. *In Passive Dropsy* it has been advised by Fordyce,* but is a remedy of inferior value. He employed it in combination with Antimony and Nitre.

223. AMYGDALÆ AMARÆ. Bitter Almonds.
AMYGDALÆ DULCES. Sweet Almonds.
The Bitter and the Sweet Almonds are obtained from closely-allied varieties of Amygdalus Communis. *Nat. Ord.* Rosaceæ ; *Div.* Amygdaleæ ; *Linn. Syst.* Icosandria Monogynia. Nees von Esenbach states that, occasionally, they are both obtained from the same tree. *Source,* South of Europe and Asia Minor. Jordan Almonds (sweet), Ph. Brit., are brought from Malaga.

Med. Prop. and Action. Sweet Almonds, which have only a place in the Ph. Brit. are demulcent and emollient. They have no very sensible medicinal properties. They are chiefly used in making the compound powder and mixture. A bland fixed oil (Ol. Amygdalæ) is obtained from both varieties: it is gently laxative in doses of fl. oz. j.—fl. oz. ij. Both sweet and bitter Almonds contain an azotized substance called *Emulsine* or *Synaptase.* Bitter Almonds differ from sweet Almonds in containing also another azotized substance named *Amygdaline.* By the action of a solution of Emulsine on a solution of

* Fragmenta Chir. et Med. 8vo, Lond 1784.

Amygdaline are obtained, among other products, Hydrocyanic Acid and the Volatile Oil of Bitter Almonds. Bitter Almonds, from containing Amygdaline and Emulsine, which together produce Hydrocyanic Acid, are sedative and poisonous, and have proved fatal even in moderate quantities. The Essential Oil of Bitter Almonds of commerce is a mixture of Volatile Bitter Almond Oil (Hydride of Benzoyl) and Hydrocyanic Acid, with small quantities of Benzoic Acid, Benzoin, and Benzamide. It is highly poisonous, being in general four times as strong as Officinal Hydrocyanic Acid. It has been occasionally used as a substitute for Hydrocyanic Acid in doses of ♏ ¼ to ♏ j., but it is an uncertain and most dangerous remedy. The smallest dose occasionally produces Urticaria and other unpleasant symptoms. Bitter Almond Water is also very poisonous.

Offic. Prep. 1. Pulv. Amygdalæ Comp. (Conf. Amygdalæ, Ph L.) (A mixture of Jordan Almonds (sweet), oz. viij.; Refined Sugar, oz. iv.; Gum Arabic, oz. j.) Used in preparing the Mixture.

2. Mistura Amygdalæ (Almond Emulsion). (Compound Powder of Almonds, oz. iiss.; Distilled Water, Oj.) Dose, fl. oz. j.—ij.

3. Oleum Amygdalæ—the expressed Oil—contained in Ung. Cetacei and Ung. Simplex.

224. *Therapeutic Uses. In Acne Rosacea and Impetigo*, the emulsion, as a local application, has been successfully employed by Dr. A. T. Thompson. He states that he found it extremely beneficial.

225. *In Lichen Tropicus* or *Prickly Heat*, Dr Houghton advises Almond Emulsion, to which a few bitter Almonds have been added. The skin should be moistened with it twice or thrice daily, or when the itching is very distressing.

226. In *Cardialgia* or *Heartburn*, Dr. Duncan states that peeled sweet Almonds, six or eight at a time, sometimes give immediate relief. Dr. Pavy* advises the use of a bread made with sweet Almonds in *Diabetes*. Without containing a trace of starch, it is unlike bran bread (usually in use in this disease), pleasant to the taste, and, if properly made, quite digestible.

227. AMYLENE. An anæsthetic agent prepared by distilling Amylic Alcohol with Chloride of Zinc. *Comp.* $C_{10}H_{10}$. Discovered by Balard in 1844.

Med. Prop. and Action. Amylene was introduced as an anæsthetic in 1856 by the late Dr. Snow,† with whom it continued to be a favourite anæsthetic to the period of his death, in 1858. It was considered by him to possess the following advantages over Chloroform and Ether:—1. The greater ease with which it could be breathed, owing to its entire want of pungency and irritating property. 2. The greater readiness with which absence of pain is obtained, with less profound coma than usually accompanies Chloroform or Ether. 3. The greater promptitude with which patients generally recover from its effects. 4. The greater infrequency of vomiting. 5. The less amount of rigidity and struggling during its operation; and, 6. The small amount of headache which results from its use.

* Guy's Hospital Reports, 1862, p 293. † On Anæsthetics, pp. 373—419.

From Dr. Snow's experiments on animals, it appears that Amylene, like Chloroform, is capable of causing sudden death by over-narcotism of the heart, and paralysis of that organ; but he is of opinion that it is more difficult to cause this kind of sudden death with Amylene than with Chloroform. Two fatal cases occurred in Dr. Snow's practice with this agent; and he attributes the fatal result in each case to the patient taking into his lungs air containing 30 per cent. of the vapour of Amylene; whilst, as far as the safety of the patient is concerned, the amount should in no instance exceed 15 per cent. This was probably due to the variation in its boiling point (86° to 115° F.), and to the fact that different specimens do not always possess the same amount of volatility. This, it must be owned, is a great objection to its use; and its ready volatility, even at ordinary temperatures, renders it a dangerous, even if not an unavailable, anæsthetic in tropical countries. In these cases, Dr. Snow employed a regular Chloroform inhaler; but he suggests that in future cases it should be administered from a bag or balloon, putting into it so much of the liquid as will make 15 per cent of vapour, when the bag is filled up with air. In this manner the variability in the boiling point of Amylene can have no influence whatever on the amount of vapour which the patient breathes; and if the vapour be breathed over again within certain limits, there will be a great saving in the amount of Amylene consumed.

Dr. Snow adduces the evidence of many eminent men in favour of this agent, and in conclusion expresses his opinion that it ought to be placed between Chloroform and Ether in respect to its comparative safety by the ordinary methods of administration, but that by breathing it from a bag, in the manner advised above, it would be absolutely safe so long as the right quantities were put into the bag.

It is only right to add that other practitioners have not formed so high an estimate of the value or safety of Amylene as Dr. Snow; indeed, the French Academy of Medicine (apparently on insufficient grounds) has condemned its employment as dangerous. Still, it must be admitted that any statement coming from so trustworthy and experienced an observer as Dr. Snow demands every respect and attention.

228. AMYLI IODIDUM. Iodide of Starch. Prepared by rubbing Iodine (gr. xxiv. moistened with a few drops of spirit) with Starch (oz. j.) until the powder assumes a uniform blue colour, and drying with a gentle heat so as not to drive off the Iodine; it is to be kept in well-stoppered bottles.

Med. Prop. and Action. This preparation was first proposed by Dr. Buchanan,* of Glasgow, as the best mode of administering Iodine, as by this means he considered that it might be introduced into the system in far larger quantities, and in a comparatively short period, without the occurrence of that gastric irritation and other unpleasant symptoms which occasionally attend the exhibition of Iodine in its free state. The average dose is a teaspoonful, given in water-gruel thrice daily, and the dose gradually increased to a tablespoonful or more. Testimonies in its favour have been recorded by M. Quesneville† and M. Droste;‡ and though it is evident from the statements of Prof. Forget§ that very large quantities may be taken with impunity, yet from a case related by Dr. Laurie,‖ it appears that in some constitutions it may produce serious or even fatal consequences. Unless carefully prepared, it is

* Med. Gazette, July 2, 1836.
† Ann. de Thérap., 1851, p. 262.
‡ Canstatt's Jahresbericht, 1851, Bd. v. S. 73.
§ Gaz. des Hôpitaux, Feb. 19, 1839
‖ Med. Gazette, 1840, p. 590.

easy to understand how the iodine thus given in large doses may be productive of untoward accidents.

229. *Its Therapeutic Uses* are similar to those of Iodine. In a case of *Ascites* related by M. Burguet * the abdomen was covered with a thick layer of Iodide of Starch (Iodine ℈j., Starch ʒxij.), under which the dropsical effusion gradually disappeared. As a local application to *Ulcerated Wounds and to Chronic Ulcers of all descriptions*, Dr. Castax,† an Army Surgeon in Algeria, states that for several years he employed the Iodide with great success.

230. AMYLUM. Starch. Fæcula of the Seeds of Triticum Vulgare. Common Wheat. *Nat. Ord.* Gramineæ. *Linn. Syst.* Triandria Digynia.

Med. Prop. and Action. 1, an antidote in poisoning by Iodine; 2, a test for the presence of Iodine in the secretions; 3, in the form of powder, a cooling application in *Erysipelas;* 4, an absorbent powder in *excoriations;* 5, in the form of decoction or infusion, an emollient enema in dysentery, &c.; 6, to thicken bandages in fractures and diseases of the joints; 7, *as a means of preventing Pitting in Small-pox*, Dr. Belcher ‡ mentions having used a thick mucilage of Starch as a local application, with excellent effect. The entire surface of the body was first sponged with tepid water. It is applicable also to various forms of *Acute Skin Diseases.*

Offic. Prep. 1. Mucilago. (Starch grs. cxx., distilled water fl. oz. x. Triturate and boil for a few minutes.)
2. Pulv. Tragacanthæ comp. (See Tragacantha.)

231. ANACAHUITE WOOD. A product of Mexico. Its botanical origin was for some time involved in obscurity; but it has been ascertained to be the wood of *Cordia Boissieri*, D.C., the *Nacahuite* of the Mexicans.

Med. Prop. and Action. It has recently been vaunted in Germany as a remedy in *Phthisis and other Chest Affections.* An infusion of the shavings of the wood is directed to be drunk in the morning fasting, and again in the evening at bedtime; but where the disease has made any considerable progress the infusion is to be used as often as the patient is inclined to drink it. Highly seasoned food, and strong alcoholic beverages, as well as coffee, are forbidden during its use. Writing in 1861, Mr. Daniel Hanbury § states: "In Germany the demand has been very considerable; and although 10,000 lbs. of the wood have been imported into Bremen and Hamburg, and sold at a high rate, the requirements of purchasers are still far from being satisfied." Trials with this wood at the Great Hospital at Berlin are, however, said to have had no satisfactory results, and chemical analysis‖ has failed to detect any constituent to which its alleged efficacy could reasonably be ascribed. (Hanbury.)¶

ANARCOTINE. (See NARCOTINE.)

* Ann. de Thérap., 1848, p. 194.
† Gaz. des Hôpitaux, No. 26, 1858.
‡ Dublin Hospital Gaz., April 1st, 1856.
§ Pharm. Journ., vol. ii., No. 5, p. 407.
‖ Buchner in Neues Report für Pharm. 1861, Bd. x., p. 97.
¶ Pharm. Journ., vol. iv. No. 5. p. 271.

232. ANETHUM GRAVEOLENS. Common Dill. *Nat. Ord.* Umbelliferæ. *Linn. Syst.* Pentandria Digynia. *Hab.* S. Europe, England.

Med. Prop. and Action. The fruit *(off.)*, commonly called the seed, is carminative and stomachic. The distilled water or the volatile oil are the best forms for administration.

Offic. Prep. Aqua Anethi (Bruised Dill fruit oz. xx.; water Cij. Distil one gallon). Dose, fl. drs. ij.—fl. oz. j. or more.

Oleum Anethi. Dose, mij.—v. Dose of seeds, gr. x.—lx.

233. *Therapeutic Uses. Flatulence, Flatulent Colic,* and *Hiccough of Infants.* Of all carminatives for the relief of these, the most commonly used, and one of the most efficacious, is Dill Water (Aq. Anethi). It may be advantageously combined with a few grains of Magnesia or Aromatic Confection.

ANGUSTURA. (See CUSPARIA.)

234. ANILINE. $C_{12}H_7N$. A volatile oily alkaloid, obtainable from indigo and from other sources, but principally from coal tar, from which it is extensively prepared for the purpose of forming certain dyes.

Med. Prop. and Action. Sedative and antispasmodic; acting apparently in a direct manner on the nervous system, according to the researches of Dr. J. Turnbull,* who first proposed it as a therapeutic agent. The Sulphate of Aniline, which appears to be destitute of the local irritating properties of the Aniline itself, is the form in which it has been chiefly employed. One peculiarity which marks its action is the presence of a remarkable blue colour of the lips, tongue, and nails, together with a more or less dusky appearance of the complexion, which, however, disappears in a few hours after the medicine has been discontinued. In some cases it occasions depression of the nervous system and headache, which are also only of a temporary nature. According to the experiments of Schuchardt† on animals, it produces anæsthesia of the hinder limbs, and lowers the temperature of the body. In large doses it is poisonous, death being preceded by violent convulsions. The blue discoloration above described is attributed by Dr. Turnbull to the formation of a colouring matter or dye, produced by the oxidation of the Aniline in the blood. The dose of the Sulphate is gr. j. twice daily, gradually increased to gr. iss.—gr. ij., in solution either with or without a few drops of dilute sulphuric acid. Its use should be intermitted for a few days, on the appearance of blueness of the lips or depression of the nervous system.

235. *Therapeutic Uses. In Chorea* it was first employed by Dr. Turnbull, who details the particulars of six cases in which it was successfully administered. Some of these cases were of considerable severity, and had previously resisted the action of other ordinary remedies. The dose was gradually increased from gr. j. to gr. iij. of the Sulphate thrice daily. In two cases of *Epilepsy* it was also used with decided benefit. In the latter disease, Dr. Anstie‡ employed it in six cases, and also in other *Chronic Convulsive Diseases.* It is, he remarks, a most serious

* Lancet, Nov. 16th, 1861, p 469.
† Virchow's Archiv. xx., 1861.
‡ Medical Times, April 5, 1862.

mistake to administer the Sulphate, or indeed any other sedative, in large doses, with the view to arrest convulsive muscular action. In two cases in which this agent was pushed to the extent of a large dose, a serious aggravation of the fits occurred. In doses of gr. j., thrice daily, with an additional grain to be taken immediately on the occurrence of any *prodromata* of a fit, Aniline seemed materially to benefit four patients, to the extent of delaying or mitigating the paroxysm; and in three instances the fit seems to have been altogether averted for a considerable time.

236. ANISI FRUCTUS. Aniseed. The fruit, commonly called the seeds, of Pimpinella anisum. *Nat. Ord.* Umbelliferæ. *Linn. Syst.* Pentandria Digynia. *Hab.* Europe, Egypt, Asia. Oil of Anise is also distilled from the fruit of Illicium anisatum. Star Anise. *Nat. Ord.* Magnoliaceæ. This Oil is imported from China.

Med. Prop. and Action. Carminative and stomachic. The volatile oil is a good form for internal use.
Offic. Prep. Oleum Anisi. Dose, gutt. ij.—v.
Dose of Anisced, gr. xv.—lx.

237. *Therapeutic Uses.* Similar to those of Carum Carui.

238. *Phthisis.* Dr. Prout is of opinion that Aniseed has considerable power in allaying the irritation on which the cough depends. He infuses ʒiij.—ʒss. of the bruised seeds in Oss. of water, at 120°, and lets it stand till it is cool. Dr. Watson* says that he has tried this as a vehicle for T. Camph. Co., when the same dose in other vehicles has failed, and that it has been frequently followed by a marked abatement of the frequency and violence of the cough.

239. ANTHEMIS NOBILIS. Common Chamomile or Camomile. *Nat. Ord.* Compositæ. *Linn. Syst.* Syngenesia Superflua. *Hab.* Europe.

Med. Prop. and Action. The Flowers (*off.*) are aromatic and tonic, and are said to be slightly anodyne. A strong infusion, drunk when tepid, causes vomiting, and it is frequently employed to promote the action of other emetics, but a weak infusion taken cold is said materially to allay gastric irritability. Externally, they are used in infusions as fomentations, and occasionally as enemas. In doses of gr. cxx. of the powdered leaves, they are a reputed febrifuge. *Active principles.* 1, a Volatile Oil; 2, Bitter Extractive. The volatile oil is stimulant and anti-spasmodic. The flowers should not be given in decoction, as boiling dissipates the oil, and renders them inert.
Offic. Prep. 1. Extractum Anthemidis. Dose gr. v.—x.
2. Infusum (Chamomile Flowers oz. ss.; Boiling Distilled Water fl. oz. x. Infuse fifteen minutes and strain). Dose: cold, as a tonic and stomachic, fl. oz. j.—ij.; warm, as an emetic, *ad lib.*
3. Oleum Anthemidis. Dose, ♏j.—v.

240. *Therapeutic Uses.* *In Dyspepsia, Debility, Hysteria,* and

* Lectures, vol. ii. p. 215.

in *all cases where the tone of the digestive organs, or the system generally, is depressed*, the infusion of Chamomile, in doses of fl. oz. iss. thrice daily, may be given with advantage. If the stomach is irritable, a few drops of T. Opii may be added.

241. *In Flatulence and Flatulent Colic*, the volatile oil (gutt. ij.—iij.) or a strong infusion will often afford relief when other remedies fail.

242. *In Intermittents*, when given in doses of gr. cxx., it was formerly in high repute as a febrifuge. Morton * speaks highly of its efficacy. He found it successful in some cases, when Bark had previously been ineffectual.

243. *As a remedy for Scabies*, it has been employed in France. The formula used is composed of equal parts of fresh Chamomile, Olive Oil, and Lard. This is stated to effect a cure in three frictions, to soothe irritation instantly, and not to give rise to any secondary affections. (M. Bazin.†)

244. ANTIMONIUM. Antimony. This metal, though not used in its metallic state internally, at the present day, was formerly employed as an emetic and purgative. Its chief medicinal value is as the basis of the following preparations:—

245. ANTIMONIUM TARTARATUM. Tartarated Antimony. Antimonii Potassio-Tartras (Ph. Lond.); Potassio-Tartrate of Antimony; Antimonium Tartarizatum; Tartarized Antimony; Tartar Emetic, $SbO_3, KO, C_8H_4O_{10}+2\,HO$. A compound of Teroxide of Antimony 43·715, Potash 13·428, Tartaric Acid 37·714, Water 5·143 in 100 parts; or 1 Eq. Teroxide of Antimony = 135 + 1 Potash = 47 + 1 Tartaric Acid = 132 + 2 Water = 18 = 350, Eq. Wt.

Med. Prop. and Action. In doses of gr. $\frac{1}{16}$—$\frac{1}{8}$, alterative; of $\frac{1}{8}$—$\frac{1}{4}$, diaphoretic and expectorant; of $\frac{1}{4}$—$\frac{1}{2}$, nauseating and sudorific; of gr. i.—iv. (in solution) emetic. Its emetic property is much increased by the addition of Ipecacuanha (grs. xv.—xl.) and its diaphoretic, by the addition of the Sulphate or Nitrate of Potash. In excessive doses it acts as an irritant poison, forty grains having proved fatal. When administered, it is absorbed into the system; it has been detected in the blood, viscera, and urine; it exerts a specific action on the stomach and alimentary canal, as is shown by the fact that, when injected into the veins or the rectum, or applied to the denuded skin, it produces nausea and vomiting. From its beneficial operation in Pneumonia, it is supposed to exercise a specific action also on the lungs, and this opinion is strengthened by the fact, that the lungs of animals killed by it were found congested, of an orange, red, or violet colour, and, in some cases, hepatized. M. Bonamy‡ carefully examined the effects of Tartar Emetic on the pulse in 25 cases. In 23, the diminution in the number of pulsations observed on the day succeeding the first administration, was 15, 30, 10, 24, 40, 3, 20, 8, 10, 5, 24, 23, 18, 13, 23, 12, 10, 15, 10. In two cases only, there was no

* De Febribus, Cap. iii.

† Brit. and For. Med. Chir. Rev., Jan. 1851.

‡ Études sur le Tartre Stibié, Paris, 1848 (R).

change in the frequency of the pulse. On the second and third day, the slowness of the pulse was generally more marked. Diaphoresis was observed in 4 cases only out of 55. M. Bonamy, therefore, considers that this is an accidental effect of Tartar Emetic, probably occasioned by the nausea and vomiting, and not by the remote action of the drug. The sedative effect of Tartar Emetic on the nervous powers, he regards as an indirect effect, consequent on the weakening of the circulation. From his numerous observations he concludes, 1, that a tolerance of the remedy is not necessary to its efficient therapeutic action; 2, that, as an antiphlogistic, it is most usefully exhibited in frequent small doses not exceeding the fraction of a grain. The purging which it occasionally induces, may be controlled by the addition of a few drops of T. Opii. If long continued, it occasionally produces irritation of the throat and fauces, and also an aphthous ulceration of the mouth, with a great increase of saliva. Under these circumstances it should be immediately discontinued. By cautiously increasing the dose, a degree of tolerance of the remedy may be established in the system, so that large doses may be given without producing any great sensible effect (See Rheumatism and Pneumonia.) It should be given with extreme caution to young children and infants, an ordinary dose having proved fatal, when given at an early age. When Tartar Emetic is given in small doses, continued through a long period of time, to a healthy person, poisonous effects result. Sickness and watery purging, diaphoresis without febrile excitement, a pustular eruption on the skin or palate, or a red efflorescence on the skin, symptoms of congestion of the lungs, with great weakness and emaciation, and ultimately death, are the results. Externally applied, it is a valuable counter-irritant. (See Ung. Antimonii Tart.)

Offic. Prep. 1. Vinum Antimoniale. (See Art. Vin. Antim.)

2. Unguentum Antimonii Tartarati. (See Art. Ung. Antim. Tart.)

Dose, gr. $\frac{1}{8}$—$\frac{1}{4}$, alterative; gr. $\frac{1}{2}$—$\frac{1}{3}$, diaphoretic and expectorant; gr. $\frac{1}{2}$—$\frac{1}{1}$, nauseating and sudorific; gr. i.—iv., emetic.

Incompatibles. Acids; Alkalies, and their Carbonates; the Earths; Hydrosulphurets; some of the Metals and their Oxides; Lime-water; Chloride of Calcium; Salts of Lead; vegetable infusions containing tannic and gallic acids. Cinchona decomposes it, but does not destroy its activity.

246. *Therapeutic Uses Fevers. In Inflammatory, Continued, and Remittent Fevers*, Tartar Emetic is a most valuable remedy, fulfilling two important indications, viz. subduing the morbidly increased action of the heart and arterial system, and determining freely to the skin. Unless contra-indicated by great gastric irritability or cerebral complications, an antimonial emetic, at the outset of the attack, may be given with manifest benefit, although it does not, as formerly supposed, "cut short" the fever. In the more advanced stages of fever, Tartar Emetic, in doses of from gr. $\frac{1}{8}$ to $\frac{1}{4}$, every one or two hours, either alone, or in combination with salines, or with Opium, exercises a most beneficial influence. In those cases where, either from great irritability of the stomach or from the delirious state of the patient, it is inadvisable or impossible to administer Antimony by mouth, Prof. Graves* advises its exhibition by means of an enema. For this purpose, gr. ij.—iij. in f℥iv.—f℥vj. of mucilage, should be thrown up high into the bowels, by means of a long flexible tube. In this way, he observes, you can secure all the good effects of Antimony in overcoming congestion of the

* Clinical Lectures, vol. i. pp. 167, 184, 197, et seq.

brain, and in procuring sleep. *In the cerebral complications* of fever, he speaks in the highest terms of the efficacy of a combination of Tartar Emetic and Opium; a very valuable formula, which is often borne and is productive of benefit, when either medicine, used singly, either fails or is inadmissible. In the third and last stage, he also has employed it with evident benefit conjoining it with stimulants, thus: — ℞. Mucilag. Acaciæ f℥ ss., Syr. Papav. Alb. f℥ j. (vel T. Opii ♏xx.), Ant. Tart. gr. ij., Camphor. gr. xv., Moschi ϑij., Aq. f℥ ivss., M. Dose, one table-spoonful every two hours. About half a grain of Tartar Emetic, and ten drops of Tincture of Opium, should enter into each draught, and should be repeated every two hours, until copious discharges of yellow fæcal matter take place, when the patient is greatly relieved, and generally falls into a profound sleep. His testimony in favour of this remedy is very strong.

247. *In Intermittent Fevers*, an antimonial emetic, unless contra-indicated by great gastric irritability, given at the outset of the attack, is attended with evident benefit. In mild cases, a complete cure is often effected by the continued use of Tartar Emetic, in doses of from gr. $\frac{1}{8}$ to $\frac{1}{6}$, every two hours; strict attention being, at the same time, paid to the state of the bowels. A practice similar to this is advocated by Dr. Moore,* of the Gwalior Contingent Force, in the intermittents of Upper India. After a brisk purgative, it having been ascertained that the fever is not complicated with any local affection of important viscera or organs, the antimonial treatment is commenced. Dr. Moore employs four mixtures, named A, B, C, and D, of which the dose is f℥j., every hour or half-hour. A contains one grain of Tartar Emetic in f℥c. of water; B, one grain in f℥l.; C, one grain in f℥xx.; and D, one grain in f℥x. The chief object in view is not to purge or cause vomiting, but simply to prostrate the patient's strength so completely, that when the first stage of fever has commenced, it must work on the patient's strength, already debilitated by the nauseating doses of Tartar Emetic. In like manner, the prostration of the strength is kept up during the second and third stages of the fever. The mixture D is commonly used for adults; f℥j. of the solution ($\frac{1}{10}$ of a grain of the salt) repeated every hour. For women and children, the weaker forms may be used. Should complication exist, they should be met with the usual remedies, but they need not interfere with the continued use of Antimony. Dr. Moore, who has extensively tested this treatment, states that it is attended with unequivocal success. It is well worthy of a further trial.

248. *Internal Inflammations. In Acute Inflammation of the Heart or its Membranes; in that of the Lungs, Pleura, Perito-*

* Indian Register of Med. Science, Oct. 1848.

neum, the Brain and its Membranes; and also in Acute Bronchitis, Tartar Emetic is a powerful therapeutic agent. It controls the action of the heart and arterial system, lowers the force and frequency of the pulse, depresses the action of the vascular system, increases the urinary secretion, and produces a certain amount of diaphoresis. It may be employed alone, or in combination with Calomel and Opium. The dose of each article, or the omission of one article altogether, must be regulated by the state of the patient, the particular form of inflammation to be subdued, and other concomitant circumstances. As a general rule, after bleeding in sthenic cases, this combination may be administered with every prospect of benefit. By the diligent use of these remedies, together with an antiphlogistic regimen, saline refrigerants, and careful attention to the bowels, there are very few inflammations that will not yield, if taken in an early stage, but the patient requires to be carefully watched, and any signs of returning inflammation should be met with a repetition of the same remedies. *In Acute Hepatitis* the value of Antimony has only recently been pointed out by Dr. H. C. Cutliffe.* He prescribes gr. ¼ with Nitre in solution every half-hour. A few leeches, hot fomentations, and spoon diet, the only accessories. He speaks very favourably of this treatment. There are some inflammations, however, in which Antimony must be administered with great caution; thus in Acute Meningitis it should never be given in such doses as to produce vomiting: should this effect be produced, the medicine should be omitted or the dose diminished. In *Pleuritis*, also, it is necessary to guard against its emetic effect; and in *Nephritis* it is seldom admissible, in consequence of the great tendency to vomiting which generally accompanies this inflammation. Dr. Watson considers Antimony most useful in inflammation of mucous membranes, and not nearly so valuable a remedy as Calomel, when serous membranes are the seat of disease. When, however, these remedies are combined, they appear almost equally useful, whether the seat of inflammation be the mucous or serous surfaces.

249. *Pneumonia.* The employment of large doses of Tartar Emetic in the treatment of acute inflammation was introduced by Rasori, in 1808. His success was reported to be so great that Laennec was induced to make a trial of the system, and he was no less successful, especially in the treatment of Pneumonia. Of 62 unequivocal cases of Pneumonia, only six died, two being moribund on admission; two were old men of seventy, with cerebral congestion and pleurisy; and the other two with disease of the heart. His plan of treatment was as follows:—If the patient was young and robust, he was bled; if old and debilitated, this was omitted. He then administered one grain of Tartar Emetic in infusion of orange-leaf, every second hour for six times. After

* Indian Lancet, Feb. 15th, 1861.

this, the patient was left quiet for seven or eight hours, if inclined to sleep, or if the symptoms were not urgent. If the inflammation had already made much progress, the same dose was repeated, until there was decided improvement. After the first few doses, a tolerance of the medicine was established, none of the usual effects being experienced, in the majority of cases, twenty-four hours after its first administration. A decided improvement soon followed the establishment of this tolerance in the system. Subsequently, however, Laennec omitted the bleeding in his treatment, and confined himself solely to the administration of Tartar Emetic, in most cases combined with Opium. Laennec's method, with considerable modifications, has been recommended by some of the highest English and continental authorities. Drs. Graves and Stokes,* of Dublin, commence their treatment with a full bleeding, and administer gr. vj. of Tartar Emetic, in divided doses, in the first twenty-four hours. To this they added gr. ij.—iij. daily afterwards, as the urgency of the case may require. Under this treatment a cure was effected in the majority of cases. Dr. Schönlein,† a high German authority, recommends the use of the lancet in all cases, previous to the use of Tartar Emetic; and it is not even then given, if the inflammatory symptoms have not in a measure subsided. He directs gr. ij.—vj. of Tartar Emetic to be dissolved in as many ounces of water, one-half to be taken in one dose at first, and a tablespoonful of the remainder every hour or so, until improvement takes place. Dr. Van Roderer prefers a combination of Tartar Emetic and Opium. He administers gr. iv.—vj. of Tartar Emetic, with an equal quantity of Opium, in the twenty-four hours. He abstains from bleeding and all other remedies, excepting an occasional aperient enema. Of 42 cases thus treated, only 13 died. A cure was generally effected in four or five days. The Opium should be omitted, if visible signs of any venous congestion are present. In Great Britain, however, perhaps from a change in the type of disease, the heroic administration of Tartar Emetic in Pneumonia is not adopted so fearlessly or frequently as formerly. Indeed, it admits of a doubt whether, in many cases thus treated, the patients did not recover *in spite of* the remedy.

250. *In the Pneumonia of Children*, the above active treatment requires modification. On this point, Dr. West‡ judiciously observes: "Tartar Emetic is a remedy of great value, but I can by no means subscribe to the unqualified recommendation of it by some French physicians, in all the forms and stages of the disease. The cases in which it seems to me to be of the greatest use are those in which the Pneumonia develops itself

* Dublin Hospital Reports, vol. v.
† Med. Chir. Rev. Oct. 1845.
‡ Report on the Pneumonia of Children, Brit. and For. Med. Rev. No. xxx.

out of previous catarrhal symptoms, or in which it supervenes upon measles, or in the course of hooping-cough. In such cases, Antimony, given in doses of ¼ gr. to a child two years old, and repeated every ten minutes till free vomiting is produced, and afterwards continued every two or three hours for forty-eight or sixty hours, has often appeared to me to be of the most essential service, and the preservation of the patient's life has seemed, in several instances, due to its employment. In Pneumonia, too, which has not been preceded by catarrhal symptoms, if, after venæsection, the respiration still continues as hurried as before, and the condition of the patient has been apparently but little benefited by that measure, Tartar Emetic has seemed to be extremely useful. I have been in the habit of giving it in large doses, as gr. ⅛ for a child two years old, and of repeating it every two hours for twenty-four hours, and have observed its use to be followed by a great diminution of the frequency of respiration, and by considerable relief to the patient. I believe that, when given in these cases, it paves the way for the advantageous employment of mercury. In no instance, however, in which the Pneumonia has been neglected, so that the period of depletion was passed, nor in which distinct bronchial respiration was audible, have I seen the beneficial results from the employment of large doses of Antimony, as recommended by many French physicians. In these cases it should not be employed, except in small doses, in combination with other remedies."

251. *Croup.* Tartar Emetic, in the treatment of Croup, is a remedy of great value. Dr. Cheyne* speaks in the highest terms of its efficacy. He regards it as the only medicine entitled to confidence in the second stage of Croup, and adds, that given in doses so as to produce continued nausea, it has been his sheet-anchor for thirty years. In the first stage he also employs it, and directs from ¼ to ½ gr. to be taken every half-hour or hour until it produces sickness; and afterwards hourly, so long as inflammatory symptoms are present. Dr. Stokes also bears testimony to the value of this treatment. The patient should be kept in a warm room at an equal temperature, and hot fomentations to the surface of the throat add greatly to the resolution of the attack.

252. *Laryngitis.* Tartar Emetic, in these cases, is often highly serviceable. It should be continued so as to keep up nausea, without producing vomiting. The following formula is recommended by Dr. Cheyne:—℞ Ant. P. Tart. gr. ij., Potas. Nit. ℈ij., Aq. f℥vj. M. Dose f℥j. several times daily.

253. *Acute Hydrocephalus.* Laennec successfully treated several cases of acute Hydrocephalus with Tartar Emetic, in doses

* Cyc. Pract. Med. vol. i. p. 497.

of gr. xij., and subsequently gr. xviij.—xx., daily. Dr. Mills adopted a modification of this treatment, combining small doses of Antimony with Calomel, or Calomel and Opium; and it is stated by Dr. Cheyne that, given in this manner, it is sometimes beneficial. The object of this treatment is to reduce the inflammatory action of the brain, and to assist in restoring the secretions of the abdominal organs and of the skin. It is of inferior efficacy either to Calomel or Iodine (q. v.)

254. *In Chronic Hydrocephalus*, M. Recamier advised the use of baths containing Tartar Emetic in solution, in proportion of ℥j. of the salt to a pailful of water. He states that it appeared to reduce the size of the head, at the same time that it acted as a diuretic. (Dr. Joy.*)

255. *Erysipelas.* In Bilious Erysipelas, or in that originating with strongly-marked gastric disorder, Desault† advises Tartar Emetic in one-grain doses, largely diluted. He states that he has seen the symptoms entirely subside under its use, although the medicine produced no other sensible alteration in the animal economy than an increase of perspiration and of urine. When the symptoms resisted these evacuations, he administered an Antimonial Emetic. In Phlegmonous Erysipelas, a bleeding preceded the use of this remedy. More recently, Dr. Walsh‡ expresses his opinion, that this salt acts specifically on Erysipelatous inflammation. He says that there is no form of the disease which should not, in the first instance, be attacked with Tartar Emetic, whether there be high inflammatory fever, low fever, vomiting, or purging; under all and every circumstance, we shall find, he adds, that the disease will yield to this remedy. He advises it in the doses used by Desault. Tonics will complete a cure.

256. *Inflammation of the Mammæ after delivery*, in many instances, subsides under the continued use of Tartar Emetic. It should be given in such doses as to keep up nausea without vomiting. It has been successfully employed by Dr. E. Kennedy, Dr. Ashwell, and Dr. Lever.§

257. *Acute Rheumatism* has been successfully treated by the French physicians with large doses of Tartar Emetic. Bricheteau‖ speaks of this treatment as being in the highest degree satisfactory. Dr. Griffin¶ made a fair trial of its virtues in these cases, and states that, though in some instances it proved effectual, in others it failed to afford relief. He administered gr. j. every hour for many successive hours. The first dose or two generally caused vomiting, but subsequently it produced no disturbance of

* Cyc. Pract. Med. vol. ii. p. 477.
† Œuvres Chir. t. ii. p. 54.
‡ Dublin Quart. Journ. Aug. 1850.
§ Lond. Med. Gaz. vol. xx. p. 761.
‖ Clinique Médicale, 1835.
¶ Med. Problems.

the system. It appears to be inferior in efficacy to Colchicum, Nitre, or Lime-juice. *In Acute Articular Rheumatism*, however, it has been found highly successful, particularly by Laennec, who states that it effected a cure in the majority of cases in seven or eight days. A curious case, illustrating the tolerance of the system to bear this remedy, is related by Prof. Forget, of Strasburg.* He gave Tartar Emetic to a robust man, aged 40, labouring under Acute Articular Rheumatism; first, in 8-grain doses, then in doses of 10, 15, 20, 30, 40, 60, and lastly 72 grains, without any disorder of the intestinal canal or general disturbance. In three days he took ʒx.! He was relieved for a time, but a relapse occurred; and he was ultimately cured by Colchicum.

258. *Hæmoptysis.* It has been recommended in Hæmoptysis, attended with considerable arterial action.

259. *Hydarthrosis, Articular Dropsies.* Tartar Emetic appears to exercise a powerful influence in these cases. M. Gimelle† particularly speaks highly of its efficacy. In 28 cases treated by him, the dose administered at the commencement was gr. iv. in twenty-four hours; this was gradually increased to gr. ij. daily, until the dose was 16, 18, or 20 grains daily; and, he states, with the invariable effect of causing the absorption of the fluid in from eight to sixteen days. Of the 28 cases, the effusion was in the knee-joint in 22; in the shoulder-joint in 2; in the elbow in 1; and in the ankle in 3. In 25, the pain and stiffness disappeared simultaneously with the effusion, and a complete cure was effected. In 2, the pain and stiffness remained; and one appears to have derived little benefit. The longest period during which the remedy was administered was sixteen days; the largest dose, gr. xx. daily. In the majority there was neither vomiting nor purging, nor any ill consequence; in those in which these did occur, they were only temporary. M. Gimelle saw all the patients some months after treatment, and in none did any relapse occur. *In Inflammation of the Joints*, Tartar Emetic forms an important part of the treatment. It may be given alone or combined with Calomel, at the same time that the local abstraction of blood and other local measures are adopted.

260. *Insanity.* When a full, hard pulse and a hot, dry skin coexist with maniacal excitement, no class of remedies is more indicated than nauseant diaphoretics; and of these Dr. Pritchard‡ prefers Tartar Emetic, 2 or 3 grains of which may be given every three hours, with the addition of a small quantity of Opium, in order to prevent its speedy rejection by the stomach. It will, in many cases, bring about in a short time a general relaxation of the system, free perspiration, soft pulse, and a cooler skin. If

* Gaz. des Hôpitaux, Feb. 19, 1839.
† Brit. and For. Med. Rev. Jan. 1841.
‡ Lib. of Med. vol. ii. p. 134.

required, it may be combined with purgatives. It has more recently been strongly advised by Dr. Flemming.*

261. In *Puerperal Insanity*, when the pulse is quick, and the face flushed, Tartar Emetic will be of use, and may probably supersede the necessity of blood-letting. (Churchill.†)

262. *Delirium Tremens.* The German physicians place much reliance on Tartar Emetic in this disease. Stoll administered it in very large doses, gr. vij. often repeated; but this practice has few advocates. Dr. Hoegh Guldberg recommends it in doses of gr. $\frac{1}{2}$, in solution; and if this does not produce nausea, he increases it to gr. j., or even gr. iss.; and this treatment he continues for two or three days, if the excitement does not abate. He states that he has found this plan very successful, and that he has never seen it produce any ill effects. It is rarely given by itself in England, but in combination with Opium it produces the most salutary effects; often inducing tranquillity and sleep, when Opium alone has failed to produce these effects. This combination was introduced into England by Dr. Graves, but it had been previously advised and employed by Dr. Thummel, of Berlin.‡ In other forms of *delirium* this combination has been successfully employed by Dr. Law§ and others.

263. *Puerperal Convulsions.* Dr. Collins speaks highly of the value of Tartar Emetic in these cases. Having freely bled the patient, and administered a strong purgative, he advises the following mixture: — ℞ Aq. Pulegii f℥viij., Ant. P. Tart. gr. iij., T. Opii gutt. xxx., Syrup. f℥ij., M. Dose, a tablespoonful every half-hour, so as to nauseate effectually, without producing vomiting. Its value in these affections is confirmed by the experience of Dr. Murphy.‖

264. *Tetanus.* Tartar Emetic, from its well-known power of relaxing the system, has occasionally been employed in Tetanus. Cases successfully treated by it are recorded by Mr. Liston,¶ Mr. Woodward,** and others. The great objection to its use is its tendency to induce vomiting, an effect which has been observed to increase the severity of the symptoms. It certainly ranks as a minor remedy.

265. *Hooping Cough.* A popular remedy is an aqueous solution of Tartar Emetic (gr. j. to Aq. f℥ij.), to which is added T. Opii gutt. xx. Of this a teaspoonful is a dose. It is stated to be very efficacious (Watson). Generally speaking, however, Ipecacuanha is a preferable remedy for children. It may also be used externally as a counter-irritant.

266. *Diseases of the Eye. In Amaurosis*, Tartar Emetic has

* Ann. Médico-Psych. July, 1850.
† Practice of Midwifery, p. 488.
‡ Rust's Magazine for 1831.
§ Lond. Med. Gaz. vol. xviii.
‖ Med. Gaz. Feb. 9, 1849.
¶ Lancet, 1834-5.
** Dublin Journ. 1835.

been highly extolled by the French physicians. After an Antimonial Emetic, they continue the remedy, so as to keep up a slight degree of nausea. In England it has not sustained its character. Mr. Travers * states that, although he gave it a full and fair trial, he does not remember one instance in which it produced decided benefit. It is particularly recommended in Amaurosis arising from a deranged state of the digestive organs.

267. *In Purulent Ophthalmia, and in Inflammations and Wounds of the Eye*, Lallemand,† of Montpellier, successfully employed Tartar Emetic in large doses. It proved effectual in several cases in which Mercury had previously failed. Blisters to the nape of the neck were employed at the same time. In this way a powerful revulsion from the affected organ was established, while the activity of the general circulation was subdued. Antimonial Emetics, in the early stage of Purulent Ophthalmia, were first employed by Mr. Saunders, and have since been highly recommended by various authors. Amongst others, Dr. Maxwell ‡ speaks favourably of their use in the Purulent Ophthalmia of India. In *Chronic Ophthalmia* and *Spots on the Cornea*, a solution (gr. j.—Aq. fl. drs. ij.) has been occasionally used as a stimulant collyrium.

268. *Plethora.* In these cases, Dr. Turnbull § advises ⅛ of a grain of Tartar Emetic, combined with ʒj.—ʒij. of Epsom Salts, to be taken every morning. It is particularly adapted to that form of Plethora denominated "Sthenic." Dr. Turnbull states that a perseverance in this treatment will be found generally efficacious in reducing the fulness of the system and the frequency of the pulse; an occasional mercurial may be taken at night. In *Epilepsy, and other diseases depending upon Plethora*, Dr. Cheyne ‖ also speaks highly of Antimonial Salts, particularly of James's Powder. He advises it to be commenced in small doses, and gradually increased until a sensible effect be produced upon the stomach, bowels, or skin. He speaks highly of its efficacy. Dr. Bell,¶ regarding the proximate cause of Epilepsy to be congestion of some portion of the nervous centres, advocates the use of Tartar Emetic. He relates some cases successfully treated by it in doses of gr. ¼—½ every four hours; but as other remedies were simultaneously employed, the force of his statements is weakened. He regards its use as not confined to sthenic cases only, but extends them to those characterised by asthenia. The value of this agent in Epilepsy has been confirmed by MM. Bouley, Gillette, and Bonfils.**

* Synopsis of Diseases of the Eye, p. 299, et seq.

† Med. Chir. Rev. No. lxxx.

‡ Med. Times, vol. xix. p. 55, 1848.

§ Lectures on Plethora, Lancet, Feb. 21, 1846.

‖ Dublin Hosp. Rep. vol. i. p. 315.

¶ Glasgow Med. Journ. October 1857

** See Ranking's Abstract, 1858, vol. xxviii., p. 86.

269. *Albuminuria.* Dr. Barlow* recommends the administration of Tartar Emetic in the acute forms of this disease. He considers that it is a remedy suggested by the nature of the affection, and calculated to fulfil the most obvious and important indications; namely, equalizing the circulation, subduing the inflammatory action, and restoring the functions of the skin. It is not to be used to the exclusion of other remedies, as moderate blood-letting, hydragogue cathartics, the warm bath, and the application of large linseed-meal poultices to the loins. Dr. Barlow relates several cases in which the Antimonial treatment was attended with decided benefit.

270. *Cholera.* Tartar Emetic has been highly spoken of by Dr. Billing† and others in the treatment of Cholera; but the small number of recorded cases in which it has been employed is hardly sufficient to warrant an unqualified opinion as to its value. On reference to the table showing the relative mortality under various forms of treatment (Art. Calomelas), it will be observed that the mortality under the use of Tartar Emetic was only 19 per cent., whilst under Calomel it was 36, and under stimulants 58 per cent. In the Droitwich Lunatic Asylum, 21 cases were treated with an emetic (Ant. Tart. gr. iij.) at the commencement, followed up by 1 grain of Opium every hour. The number who died were only 4, or 19 per cent.; 26 other cases were treated with Calomel, Opium, and stimulants, omitting the emetic, of whom 17 died, or 66 per cent. Mr. Littleton, of Saltash, was in the habit of dividing ʒss. of Tartar Emetic into 5-grain doses, and of giving one every twelve minutes until the vomiting ceased. He then administered gr. xl —l. of Calomel. He highly applauds the Tartar Emetic treatment; and many other writers have spoken of it in favourable terms. (Mr. Ross.‡)

271. *Strangulated Hernia.* In these cases Tartar Emetic has occasionally been used for the purpose of relaxing the muscular system, and facilitating the return of the bowel. It is rarely advisable, and is inferior in efficacy to Chloroform or Opium. If used, it should never be given in sufficient doses to produce vomiting, as the violent action of the abdominal muscles thus induced may increase the mischief.

272. *Parturition.* In tedious labours depending upon an undilated state of the os uteri, Tartar Emetic will often be found of the most signal benefit in relaxing the parts. Blood-letting should precede its administration. Dr. E. Kennedy, of Dublin, first introduced its use; and Dr. Churchill § recommends the following formula:—℞ Magnes. Sulph. ʒj., Infus. Sennæ fʒvijss., Ant. Pot. Tart. gr. iij.; Syr. Zingib. fʒss., M. Of

* Guy's Hospital Reports, vol. x.
† Principles of Medicine, p. 240.
‡ Med. Times, vol. xix. p. 89.
§ Pract. of Midwifery, p. 206, 1850.

this, two tablespoonfuls should be given every hour, or half-hour, so as to keep up a degree of nausea short of actual vomiting. Dr. Churchill observes that, given in this manner, Antimony is an exceedingly valuable remedy, perfectly safe, and very successful. Dr. Tyler Smith* also bears testimony to its efficacy.

273. *Ptyalism.* Dr. Maxwell,† of the Madras Medical Service, advises Tartar Emetic in these cases to be given in repeated doses, so as to keep the system fully under its influence. It is advised to be given largely diluted in *hot* water, and the action to be assisted by copious draughts of hot diluents. Two days are required to remove the ptyalism. This method does not appear to have been so successful in the hands of others as in those of Dr. Maxwell.

274. *Syphilis.* Tartar Emetic, as a remedy for Syphilis, is advised by Mr. Smee.‡ He employs it in doses of gr. $\frac{1}{6}$—$\frac{1}{4}$, every four hours, both in the primary and secondary forms of Syphilis. If much debility exists, he combines it with a course of Iron or Zinc. It has also been extensively employed by Dr. Willebrand,§ of Finland. Cases of primitive chancre were cured by its internal use alone, in from ten to twenty days, no application having been made to the sore but simple water dressing. In a few cases in which there was much induration, a cure was not effected. In 30 cases of secondary Syphilis, all symptoms of the disease disappeared in from eleven to fifteen days. *Syphilitic eruptions* rapidly and easily yielded. The dose generally employed was half a grain six or eight times a day. Mercury in every form was avoided. Cleanliness, repose, and a regulated diet were the only other means adopted.

275. *Dislocations.* In reducing long-standing dislocations, Tartar Emetic is a valuable adjunct to blood-letting and the hot bath, in relaxing the muscular system. The dose must be regulated by the strength and age of the patient. It should be given until it produces complete nausea. Continued vomiting should be avoided. Chloroform has almost entirely superseded the use of these measures.

276. *In Acute Dropsy*, Tartar Emetic proves useful as a sedative and diaphoretic, and may advantageously be combined with the Bitartrate of Potash, or with Squills. It has the recommendation of Sydenham, Van Helmont, and other high authorities. In some cases it forms a useful adjunct to Calomel. At the same time, counter-irritation with Tartar Emetic ointment, at some distance from the most affected parts, proves useful. (Copland.‖)

277. *In Influenza*, Tartar Emetic, in nauseant doses, proves

* Lancet, Nov. 25, 1848.
† Med. Times, vol. xix. p. 56.
‡ Med. Gazette, Sept. 10, 1842.
§ Gaz. Médicale de Paris, June 29, 1844.
‖ Med. Dict. vol. i. p. 613.

highly serviceable. It often is most beneficial to give it in combination with small doses of Opium, as advised by Dr. Graves, or with Potassæ Nitras.

278. *In obstinate Constipation dependent upon the absence of Mucus to lubricate the Intestines*, Tartar Emetic sometimes produces relief. Dr. Nevins * mentions, in illustration, the case of an old man who had no evacuation from the bowels for eleven days, notwithstanding the employment of purgatives of every description, and of glysters, great and small. He administered the salt in doses of gr. ¼, every hour, with ʒj. Magnes. Sulph. He was constantly nauseated by it, and in six hours passed a mass of hardened fæces; after which he had no further ailment.

279. *In Acute Orchitis*, an Antimonial Emetic, followed by nauseating doses of Antim. Tart., has often a marked effect in reducing the swelling and relieving the pain. Mr. Hunter † suggests that the effects of the vomit most probably arise from sympathy between the stomach and the testicle. It should not be used to the exclusion of leeches, fomentations, and other local measures.

280. *Bubo.* Mr. Milton ‡ advises Tartar Emetic to be given in grain doses every second hour, until a marked effect is produced upon the inflammatory swelling. He states that this treatment is very efficacious, and supersedes, in the majority of instances, the necessity of surgical interference. *To Nævus*, Dr. Zeissl § recommends the application of a plaster containing gr. xvj.—xviij. of Tartar Emetic, and ʒj. of diachylon. A portion of this should be spread all over, and somewhat beyond the nævus, and kept *in situ* by means of strips of gummed paper. In five or six days the nævus begins to suppurate; a crust forms, which falls off in about fourteen days, leaving a surprisingly slight cicatrix. It is only applicable to nævi of medium size.

281. VINUM ANTIMONIALE Antimonial Wine. Vinum Antimonii Potassio-Tartratis (Ph. L.). A Solution of Tartarated Antimony grs. xl. in Oj. of Sherry. Each fl. oz. j. contains grs. ij. of Tartar Emetic.

Med. Prop. and Action. Diaphoretic and expectorant, in doses of ♏x.—xxx. frequently repeated; nauseant, in doses of fl. drm. i.—fl drs. ij.; emetic, in doses of fl. oz. ss., or fl. drs. ij. every ten minutes, until the desired effect is produced. As an emetic for children, from gutt. xxx.—fl. drm. j.

Incompatibles and *Therapeutic Uses*, the same as Antimonii Potassio-Tartras.

282. UNGUENTUM ANTIMONII TARTARATI. Ointment of Tartarated Antimony. Unguentum Antimonii Potassio-Tartratis (Ph. L.) Tartar Emetic Ointment. Prep. Tartarated Antimony in fine powder, oz. ½. Simple Ointment, oz. j.

* Trans. of Pharm. 1851, p. 353.
† On the Venereal Disease, p. 91.
‡ Medical Times, Oct. 4, 1851.
§ Ibid. Oct. 25, 1851.

Med. Prop. and Action. Counter-irritant, when rubbed on the skin to the amount of gr. xxx., once or twice daily. After a few applications, it gives rise to a pustular eruption. The extent of the eruption, the amount of attendant inflammation, and the length of time necessary for the production of these effects, differ in almost each individual; the thickness of the skin, the age of the patient, and the manner in which the ointment is applied, greatly influencing its appearance and character. If the ointment is only smeared over the skin, the eruption will be very slight and tardy in its appearance; whereas, if it be steadily rubbed in for fifteen or twenty minutes daily, an extensive crop of pustules, with much inflammation, will be readily excited. When the skin is thick, and it is desirable to produce a considerable amount of irritation, it is advisable to employ friction with a warm flannel or flesh brush previous to applying the ointment. Dr. Stokes considers that the officinal ointment is of too great a strength, and states that from ℈j. to ℥ss. of Tartar Emetic, *finely powdered*, and thoroughly incorporated with ℥j. of lard, is much more efficacious than the stronger formula. An aqueous solution of Tartar Emetic is preferred by some to the ointment. It is certainly more cleanly and convenient, and, if it will produce the same amount of irritation as the ointment, it may be advantageously substituted for it. Dr. Hannay* strongly recommends the following solution, as being as efficacious as the ointment, and productive of less irritation:—℞ Antim. P. Tart. ℥j. Hyd. Bichloridi (P. L.) gr. v., Aq. f℥j., Spt. Lavand. gutt. x., M. The addition of the Corrosive Sublimate is stated greatly to increase the efficacy of the Antimony. Dr. Hannay adds, that for twenty years he has constantly used this solution with benefit. Occasionally a pustular eruption on the scrotum and thighs appears in persons using this ointment, although applied to a distant part. It does not appear to depend altogether on the inadvertent application of the ointment to those parts. The points to be particularly observed in using this ointment are, 1, to take care that the salt is finely powdered; 2, to avoid, carefully, applying it to excoriations or wounds, as from leeches, &c.—gangrene has followed the non-observance of this point; 3, to suspend its use, if the salt becomes absorbed, and produces constitutional derangement; and, 4, not to apply it to very young children, unless it is urgently required.

283. *Therapeutic Uses. Diseases of the Chest. In Acute Bronchitis*, Dr. Williams† advises an ointment composed of 1 part of Tartar Emetic, and 2 or 3 of lard The skin should be first well rubbed, or a mustard poultice applied, and immediately afterwards the ointment. In this way, a great amount of irritation will be produced in three or four hours. *In Chronic Bronchitis*, he prefers the following counter-irritant:—℞ Solut. Saturat. Ant. Tart. f℥ j., Potass. Iod. ℥ss., Ol. Terebinth. ♏xv. M.

284. *In Phthisis*, much relief is often obtained by Tartar Emetic counter-irritation over the subclavicular region. The cough and dyspnœa, in particular, are relieved by it.

285. *In Asthma and Angina Pectoris*, Tartar Emetic irritation is occasionally of great service. Amongst others, Lind‡ relates several cases cured by its use.

286. *In Hooping Cough*, it has been employed by Autenrieth, Corsin,§ and others, with a view to mitigate the severity and frequency of the paroxysms. It is advised to be applied to the

* Ed. Med. and Surg. Journ. Oct. 1843.

† Lib. of Med. vol. iii. p. 76.

‡ Med. Chir. Rev. vol. iv. p. 497.

§ Ibid. No. xlv p. 215.

upper portion of the spine. It is too severe a remedy for very young children.

287. *In Chronic Laryngitis, and in the later stages of Acute Laryngitis*, Tartar Emetic counter-irritation to the upper part of the sternum has been found beneficial.

288. *Subacute Ovaritis* is greatly benefited, in the experience of Dr. Rigby, by Tartar Emetic ointment well rubbed over the part. When the eruption appears, a piece of lint is to be applied, until a slight degree of sloughing is produced. He states that he knows of no application so efficacious. *In Ovarian Dropsy*, it has been said to be occasionally serviceable.

289. *In Acute Meningitis, whether tubercular or simple*, Dr. Halen* strongly advises counter-irritation by Tartar Emetic ointment to the scalp. It is to be repeated every two hours until pustules are established. It occasionally induces gangrene, and should therefore be cautiously employed. At the same time, he advises bleeding and calomel. The space for counter-irritation should be about an inch and a half. He mentions some cases in which the efficacy of this treatment was very remarkable, and adds that, by the above means, he has saved 14 cases in an apparently hopeless state of coma.

290. *Articular Dropsies, and Enlargement of the Joints.* Counter-irritation by Tartar Emetic is often of the highest service in these affections. It requires to be steadily persevered in. Tartar Emetic may be given internally, at the same time. *In Chronic Inflammation of the Joints*, it also proves highly serviceable.

291. *Hysteria. For pain in the Left side*, so constantly found associated with Hysteria, Dr. Conolly† advises the application of Tartar Emetic Ointment (ʒj. to ʒij. or ʒiij. of Lard), to be rubbed over that portion of the spine which supplies the part with nerves. The surface should be previously washed with warm vinegar. In most cases it creates great irritation, and it seems doubtful whether the pain decreases in proportion to the irritation it occasions. Dr. O'Beirne and Mr. Tate‡ speak highly of its efficacy.

292. *Tic Douloureux and Neuralgic Affections* are often benefited by Tartar Emetic counter-irritation over the affected part. It is favourably spoken of by Hausbrandt.§ When these affections, however, arise from derangement of the digestive or uterine organs, it fails of affording much relief.

293. *In the Paralysis of Children*, the region of the spine should be rubbed with the ointment. Its effects are most beneficial, especially when one leg only is affected. It is sometimes necessary to keep an eruption out for many weeks. (Pereira.‖)

* Prov. Med. Journ. Nov. 14, 1849.
† Cyc. Pract. Med. vol. iv. p. 584.
‡ Treat. on Hysteria, 1830.
§ Brit. and For. Med. Rev. Jan. 1837.
‖ Mat. Med. vol. i. p. 755.

294. *To Foul Ulcers, Fungous Growths, Venereal Warts, and Tinia Capitis*, the late Sir William Blizard advised a stimulating wash, composed of ℈j. of Ant. Tart. in f℥j. of water. (*Ib.*)

295. ANTIMONII IODIDUM. Iodide or Ioduret of Antimony.
ANTIMONII OXY-IODIDUM. Oxy-iodide of Antimony.

Med. Prop. and Action. Alterative and diaphoretic. Dr. Vanden Corput,* of Brussels, from an examination of these preparations, concludes that the Oxy-iodide is the only chemical form in which the combination of Iodine and Antimony can be conveniently used as an internal remedy; the Iodide becoming too readily decomposed by contact with the liquids of the digestive canal. The Oxy-iodide is a drug of great efficacy, being at the same time an expectorant and a powerful alterative. In doses of from 5 to 25 centigrammes (from about gr. ℔ to gr. iij ½), it frequently excites nausea, and sometimes vomiting; at other times it produces frequent and copious stools. The effects may be easily modified by opiates or some other narcotic agent capable of deadening the susceptibility of the stomach. Tolerance appears to be easily established, the dose being gradually increased from 20 to 50, or even to 70 centigrammes (from about gr. ij ℔. to gr. vij., or even to gr. x.), in twenty-four hours. These doses excite primarily much diaphoresis, which is soon followed by considerable depression of the circulation. The number of inspirations is diminished in frequency, and this effect is accompanied by extreme muscular weakness. The Iodide externally applied, in the form of ointment or plaster, is a powerful revulsive, analogous in its action to Tartar Emetic. Like it, it creates a pustular eruption, but it has this advantage, that independent of its local derivative action, it operates beside on the organism in a general manner, by giving up a part of its iodine, which is then either directly absorbed, or, by being vaporized by the heat of the body, surrounds the patient with an iodized atmosphere.

Dose of the Oxy-iodide of Antimony, as an alterative and diaphoretic, gr. ℔ gradually increased to gr j., or even more, if tolerance be established.

296. *Therapeutic Uses.* The Oxy-iodide is particularly serviceable in *Inflammation of the parenchyma of the Lungs, and especially in the second stage of Pneumonia*, also in the treatment of *Subacute Bronchitis* and of *Œdema of the Lungs.* Its alterative and diaphoretic properties are also manifest in the treatment of *Rheumatic Affections*, as well as in certain *Inflammatory Diseases of the Heart.* The Iodide, as an external application, proves advantageous in the same affection as Tartarized Antimony, but it should be borne in mind that its action is more powerful.†

297. ANTIMONII OXIDUM. Oxide of Antimony. Teroxide of Antimony. SbO_3. Insoluble in water, but pretty readily dissolved by weak acids. In the stomach it is probably converted into a salt, and absorbed into the system. It is the active ingredient in the following officinal preparation.

PULVIS ANTIMONIALIS. Antimonial Powder. A mixture of Oxide of Antimony oz. j.; Precipitated Phosphate of Lime oz. ij.

* Bull. Gén. de Thérap. Jan. 30, 1862.

† Brit and For. Med. Chir. Rev. July 1862.

Med. Prop. and Action. Nauseant and diaphoretic in *febrile conditions*, alterative in *chronic diseases of the skin*. The action of Oxide of Antimony is the same as that of Tartar Emetic, except that its effects are modified by its inferior solubility. Slowly acted on by the fluids of the stomach, the Oxide is believed to be less irritating, less sudden, and more lasting in its effects than the Tartrate.* The *Pulvis Antimonialis* (Ph. Brit.) is intended to supersede the secret remedy known as *Pulvis Jacobi Veras, James's Powder*, and the *Compound Antimonial Powder* of the Pharm. Lond. These two latter preparations are both uncertain in their action, owing to the variable quantity of Teroxide of Antimony, and of insoluble Antimonious Acid, SbO_4, they contain. Large quantities of James's Powder and the Compound Antimonial Powder (Ph. Lond.) have been given without producing sensible effects. Dr. Elliotson found 120 grains of the latter nearly inert. On the other hand, in five-grain doses, James's Powder has produced copious vomiting and purging. The mode of preparation of the *Pulvis Antimonialis*, (Ph. Brit.) precludes any possibility of variation in the proportion of the soluble oxide. The Oxide of Antimony is well adapted for administration in powder or pill. In the *Pulvis Antimonialis*, the Phosphate of Lime is insoluble and probably inert.

Dose, Oxide of Antimony gr. j.—v. Pulvis Antimonialis gr. iij.—xv.

298. ANTIMONIUM SULPHURATUM. Sulphurated Antimony. Antimonii Oxysulphuretum (Lond.). Antimonii Sulphuretum Aureum (Ed.). Antimonii Sulphuretum Præcipitatum (Dub.). Tersulphuret of Antimony, SbS_3, with a small but variable amount of Teroxide of Antimony, SbO_4.

Med. Prop. and Action. Alterative; emetic. It is very uncertain in its operation; its chief value is as an ingredient in Plummer's Pill.

Offic. Prep. Pilula Calomelanos comp. (See Calomelas.)

Dose of Antimon. Sulphuratum. Alterative, gr. j.—v.; emetic, gr. x.—xx.

299. ANTIMONII TERCHLORIDUM. Terchloride of Antimony. SbCl . Chloride or Muriate of Antimony.

ANTIMONII TERCHLORIDI LIQUOR. Terchloride of Antimony. $SbCl_3$, dissolved in Hydrochloric Acid. Butter of Antimony. Sp. gr. 1·47.

Med. Prop. and Uses. The Terchloride of Antimony in its solid state is occasionally used as an escharotic. The Liquor Antimonii Terchloridi is a powerful caustic. It is used as an escharotic to *poisoned wounds, cancerous growths, &c.*

300. APIOL. APIOLUM. The peculiar principle of the seeds of *Petroselinum sativum*, or Common Parsley, obtained by treating them with Alcohol at 158° to 176° F. It occurs in the form of a yellowish oily liquid, with an odour somewhat resembling the powdered seeds and an acrid piquant taste. Is soluble in alcohol, ether, and chloroform.

Med. Prop. and Action. Tonic, anti-periodic, and emmenagogue. Joret and Homollet† found that, when taken in doses of gutt. vij.—xv., it occasioned slight cerebral excitement, similar to that produced by coffee, together with epigastric warmth. In doses of f℥ss.—f℥j., it caused vertigo, tinnitus aurium,

* Garrod, Lect. on Brit. Pharm. Med. Times and Gazette, Feb. 13, 1864, p. 167.

† L'Union Méd., Jan. and Feb. 1855.

headache, &c., similar to the effects produced by a strong dose of Quinine. Occasionally, its use was followed by nausea, colic, and bilious diarrhœa.
Dose, gutt. viij.—xv. in syrup.

301. *Therapeutic Uses. In Intermittent Fevers* the value of Apiol has been examined by Joret and Homolle.* Of 43 cases of all types, collected from various parts of France, 37 were cured, and in the remaining 6 the fever was modified, but not removed. Of 30 cases occurring in hot climates, only 16 were cured. From these facts it is concluded that, if Apiol be not of equal value to Quinine in the intermittents of hot climates, it may yet be very well substituted for it in indigenous, *i.e.* European, intermittents: other facts in favour of this remedy are adduced by M. Joret.† Dr. Jacquot,‡ however, subjected it to a trial in the military hospitals at Rome, and expresses great doubt as to its efficacy, only one case in six yielding completely to the remedy. It apparently deserves to be classed amongst those minor remedies which often prove successful in mild cases of intermittents. The usual dose is gutt. xv., gradually increased. In *Intermittent Neuralgia* and in the *Night Sweats of Phthisis*, Joret and Homolle consider that this remedy is likely to prove serviceable.

302. *In Amenorrhœa and Dysmenorrhœa*, Apiol, according to Dr. Joret,§ is one of the safest and best emmenagogues which can be employed, not being contra-indicated even in cases of incipient pregnancy. It is thought to be especially adapted for these states when they arise from a diminution or excess or perversion of the vitality of the uterus, attended with local or general nervous symptoms. To be effectual, it requires to be administered at those periods when the menstrual discharge would be naturally expected to return, and to be continued for five or six successive days. A dose should be taken night and morning.

303. APOCYNUM ANDROSÆMIFOLIUM. (U. S. Ph.) Dog's Bane. Fly-trap. *Nat. Ord.* Apocyneæ. *Linn. Syst.* Pentandria Digynia. *Hab.* The whole of North America.

Med. Prop. and Action. The root is emetic and diaphoretic. It is stated to be an excellent substitute for Ipecacuanha, by which name, indeed, it is known in the Eastern States of America. It is employed in the same cases as the latter drug.

Dose. Emetic, gr. xxx.—xl.; diaphoretic, gr. v.—x.

304. ARCHANGELICA OFFICINALIS. Garden Angelica. *Nat. Ord.* Umbelliferæ. *Linn. Syst.* Pentandria Digynia. *Hab.* Europe.

Med. Prop. and Action. The whole plant is stimulant and stomachic. The root and fruit (seeds) are principally used.

* Op. cit.
† L'Union Méd., June 26th, 1856.
‡ Archiv. Gén. de Méd., June 1854, p. 678.
§ Bull. Gén. de Thérap., Aug. 15th, 1860.

Dose, gr. xxx.—lx. daily in infusion.

305. *Therapeutic Uses.* *In Dyspepsia*, *Flatulence*, and other diseases, it was formerly held in high repute. It is now rarely employed.

306. ARCTIUM LAPPA. Lesser Burdock. Clitbur. *Nat. Ord.* Compositæ. *Linn. Syst.* Syngenesia Æqualis. *Hab.* Europe. A closely allied species is found in the Himalayas.

Med. Prop. and Action. The root is tonic, diuretic, and alterative; the seeds bitter and cathartic; and the leaves are used as local applications. Dr. O'Shaughnessy* states, that he has witnessed effects from the root quite equal to those of Sarsaparilla.

Dose. Of the leaves or root oz. ij.—iv. daily in decoction

307. *Therapeutic Uses.* *In Ague, and in general debility*, Burdock is a popular remedy in Ireland; but it is in *diseases of the skin* in which its utility is chiefly established. Dr. Graves† relates an obstinate case of Impetigo, which was cured by the following decoction: — Leaves or Root of Burdock, ʒiv., Water Oij., boil to Oj. The whole to be taken in divided doses, in the course of the day.

308. ARGENTUM. Silver. A metal, which, in its native state, appears to be totally inert. Medicinally, it is, however, of great value, as the basis of the following preparations.

309. ARGENTI CHLORIDUM. Chloride of Silver. Ag Cl. Called also the Chloruret and the Muriate, of Silver, is obtained by adding a solution of common salt, or Hydrochloric Acid, to a solution of Nitrate of Silver.

Med. Prop. and Action. Alterative and emetic.

Dose. As an Alterative, gr. ¼—gr. iij. thrice daily. In doses of gr. xxx. it acts as an emetic.

310. *Therapeutic Uses.* *Scrofula.* Dr. Sicard states that, for many years, he successfully employed the Chloride of Silver in these cases. He gives it in form of lozenge, with chocolate, in doses of gr. $\frac{1}{12}$, half an hour after each meal. The dose may be gradually increased to $\frac{1}{10}$—$\frac{1}{8}$ of a grain. He also uses it externally, in the form of ointment.

311. *Syphilis.* M. Serre,‡ of Montpellier, made many trials with the Chloride in Syphilis, and, although it occasionally proved beneficial, he found that it could not be depended upon. Biett § also tried this and the other salts of Silver in Syphilis. He states that he has never seen it beneficial, and that, in some cases, it was manifestly injurious.

312. *Diarrhœa and Dysentery.* Dr. Perry ‖ (U.S.) strongly

* Beng. Dispens. p. 410.
† Clinical Lectures.
‡ Bull. Gén. de Thérap. 1836.
§ Med. Chir. Rev. N.S. vol. lx. p. 538.
‖ Brit. and For. Med. Rev. vol. xii. p. 567.

recommends the Chloride of Silver in these affections, after the inflammatory symptoms have subsided. He advises it in doses of gr. ½ to gr. iij., gradually increased to gr. xij. daily, and states that he found it productive of excellent effects. He likewise employed it with advantage in *Epilepsy*, and other affections in which the Nitrate is usually administered.

313. ARGENTI NITRAS. Nitrate of Silver. AgO, NO_5. Called also Argentum Nitratum, Argentum Nitricum, Lunar Caustic. A compound of Oxide of Silver 68·24, Nitric Acid 31·76, in 100 parts, or 1 Eq. Oxide of Silver = 116 + 1 Nitric Acid = 54 = 170, Eq. Wt.

Med. Prop. and Action. Tonic, anti-spasmodic, and sedative, in doses of from gr. ¼ to gr. j. or gr. ij. In very large doses, it is a corrosive poison. If taken in small doses for a great length of time (two or three months), it occasionally communicates a peculiar blue appearance to the skin. When applied to the skin, mucous membranes, or ulcers, it produces a white mark, owing to the union, according to Dr. Pereira, of the salt with the coagulated albumen of the cuticle: this gradually becomes bluish grey, purple, and ultimately black, owing to the partial reduction of the silver. Its probable action, when given internally, is that of astringing the mucous coats of the intestines. It is also a powerful tonic of the nervous system, but its *modus operandi*, in the latter case has not yet been satisfactorily explained. Heller* carefully examined the blood and urine of epileptics who had undergone long courses of the Nitrate, but failed to detect any traces of Silver, whilst he found the fæces to contain, in the form of the Chloride, the greater part of the Silver which had been administered. Still we are justified in believing that a portion of the salt becomes absorbed, and exercises a tonic influence on the nervous system, independent of the local chemical action it may exercise on the mucous coats of the stomach and intestinal canal with which it comes in contact. Externally applied, it is stimulant, vesicant, and escharotic. The Nitrate lightly applied three or four times to the moistened skin causes vesication in a few hours. In most persons, it creates less irritation than Cantharides; whilst, in others, it causes acute pain. In rare cases, delirium has followed its application to the scalp.

Dose, gr. ¼—gr. j. or more.

314. *Obs. on the Use of the Nitrate of Silver.*

1. Previous to commencing a course of the Nitrate of Silver, administer a mild aperient (Ol. Ricini) to carry off any superabundant acid or fæcal accumulations.

2. It is rarely admissible as long as inflammation is present. When this is subdued, it may be given with advantage.

3. It is best given in some mild vegetable powder with mucilage or extract; the usual vehicle, bread crumbs, is objectionable, from their usually containing a portion of common salt, which decomposes the Nitrate.

4. The Nitrate should be finely powdered before being made into pills. Its efficacy is thereby greatly promoted.

5. During a course of this medicine, it should be occasionally intermitted for a day or two and a mild aperient administered. If this is done, the course may be continued for a longer period without any of the ill consequences which would otherwise ensue. The gums and fauces should be frequently and carefully examined, and the slightest discoloration indicates the necessity of immediately discontinuing the salt.

6. During its use the quantity of salt or salt food taken should be small, and never immediately before or after the remedy.

* Archiv für Physiol. 1846, vol. i. p. 324.

7. It is also advisable that the patient should not be much exposed to the sun. In some instances exposure seems to have promoted or hastened the blue appearance of the skin.

8. The course may be continued with safety for a month or six weeks. Dr. J. Johnson says for three months

9. If discoloration of the skin occur, the remedies from which most benefit is derived are Iodine, Nitric Acid, and the Bitartrate of Potash.

10. Before commencing its use the pat ent should be made acquainted with the possible ill consequences which may result from it.

11. It may be admin stered in larger doses and for a longer period in the form of pill than in that of solution.

12. If, in the application of the solid Nitrate to the fauces, urethra, &c., a piece be accidentally left in any of the passages where it cannot be extracted or where it causes great pain, a solution of common salt should be used as an injection.

13. When solutions are to be injected into any of the cavities, a glass syringe should be employed.

14. The local application of the Nitrate in solution to the eye, is sometimes followed by a blackish or bluish grey discoloration of the conjunctiva. It is usually described as "indelible," but it may be partially or altogether removed by a weak solution of the Hyposulphite of Soda (gr. x. ad Aq. ℥j.)—DIXON.

Incompatibles. Acids and Acidulous Salts; Alkalies and their Carbonates: Lime-water; Spring and River Water: Soaps; all solutions of Vegetable Astringents; Chlorides; Liq. Arsenicalis; Albumen, and Milk.

315. *Therapeutic Uses. Diseases of the Abdominal Viscera.* The value of the Nitrate of Silver in *Dyspepsia* was first established by the late Dr. James Johnson,* who relates many obstinate cases, attended by morbid sensibility and hypochondriasis, which yielded to its use. He considers that its probable action consists in lessening the sensibility of the nerves, and thereby rendering them insusceptible of irritation. He advises a formula similar to the following:—℞ Argent. Nit. gr. ½, Ext. Hyoscyam. gr. ij.—iv., ft. pil. omni nocte sumend. The quantity of the Nitrate may be gradually increased to gr. ij.—iij. daily, and this may be continued with safety for six or eight weeks, but not beyond that time. Strict attention to the diet should be observed. In some cases, it may be advantageously combined with small doses of Quinine. Dr. Copland also bears witness to its efficacy. Dr. Fleming† prefers administering it in solution (Argent. Nit. Crystal. gr. j. — iv. ad Aq. Destil. f℥ ss.) to be taken at bedtime on an empty stomach, and repeated every night, or every second, third, or fourth night, according to the severity of the disease. In very obstinate cases he introduces the solution into the stomach by means of an apparatus.

316. *In Gastralgia*, particularly when attended by sour vomiting or Pyrosis, the Nitrate of Silver has been successfully employed by Drs. J. Johnson,‡ Osborne,§ Boudin,‖ Hudson,¶

* On the Influence of Tropical Climate, 6th Ed. p. 669.

† Med Times, Jan. 1859.

‡ Ut supra.

§ Dublin Journal, vol. viii.

‖ Edin. Med. and Surg. Journ. No. 141.

¶ Dublin Journal, vol. xvii. p. 235.

Brigger, Steinitz, and Mr. Langston Parker. From the experience of these writers, there are few, if any, remedies which exercise a more powerful and beneficial influence. It may be given in doses of gr. ¼ to ½ twice or thrice daily, in combination with Ext. Taraxaci. Dr. Symonds,* in bearing testimony to its efficacy, states that he has found it chiefly useful in those cases which present a combination of nervous irritability with chronic or passive congestion of the stomach. In *Pyrosis* he found it most successful in doses of gr. j. thrice daily. In *Chronic Gastritis* of the worst kind, Professor Wood† states that this is the most effectual remedy he knows of. Dr. Fleming‡ advises that in these cases the crystallized Nitrate dissolved in distilled water be injected into the stomach.

317. *In Obstinate Diarrhœa of Children*, when the Acetate of Lead and other astringents have failed in arresting the discharge, the Nitrate of Silver often proves effectual. Dr. Willshire§ observes on this point, "I know nothing like Argenti Nitras for stopping the diarrhœa, even if it does no more than this; but I think that it does far more. It appears to me to alter the general assimilative functions." He advises the following formula:—

℞ Argent. Nit. gr.j., Acid Nitric Dil. ♏v., Mucilag. Acac., Syr. Simp. āā f℥vj., M. sumat f℥j. 4tâ quâque horâ. It may be given safely to children of a year old. The French physicians employ it largely, not only by mouth, but in the form of enema. M. Trousseau advises from gr. ¼ to gr. ij. to be dissolved in f℥x. of fluid, and to be thrown high up into the intestine, having previously employed an enema of common salt. In mild cases he recommends one injection daily for three or four days; but in bad cases it may be repeated twice in twenty-four hours.

318. *In the Diarrhœa of Phthisis*, Dr. Graves‖ regards Nitrate of Silver, in doses of gr. j. three or four times daily, one of the best remedies.

319. *In Dysentery, Acute and Chronic*, the Nitrate of Silver has recently been extensively employed, and has obtained a high character as a remedy in these affections. The following is a brief sketch of the mode of treatment strongly advocated by Dr. Hare,¶ of the Bengal Medical Service, and which, in other hands, as in those of Dr. Hare, has been found highly successful *in the acute form*. He commences his treatment with the use of large enemas thrown into the colon, in the manner first introduced by Dr. O'Beirne. The patient is placed on the left side, and the flexible tube of a stomach-pump is cautiously introduced, per

* Lib. of Med. vol. iv. p. 83.
† Therap. vol. i. p. 393.
‡ Op. cit.
§ Lect. on Dis. of Children, Med. Times, vol. xvii. p. 250.
‖ Clinical Lectures, vol. ii. p. 228.
¶ Edin. Med. and Surg. Journ. July 1, 1849, and Indian Ann. of Med. Sci. vol. i. p. 486.

rectum, about six or seven inches, or at any rate till it reaches above the sigmoid flexure of the colon; 3, 4, or even 6 pints of warm water, or milk and water, are then injected, and this on returning per rectum, will, in many instances, be accompanied by large quantities of hardened fæces. Dr. Hare advises that the tube, when first inserted, should be moved up and down, in order to break up and mix with the water the hardened fæcal matter. If much does not come away with the first enema, he advises its repetition twice or thrice. It requires to be employed daily. Should the retained fæcal matter have given rise solely to irritation, or even inflammation, these will yield to the ordinary antiphlogistic remedies; but should they have been retained such a length of time that ulceration has taken place, then Dr. Hare advises the employment of enemas composed of Argenti Nitras gr. xv. in Oiiss.—Oiij. of distilled water, to be thrown up in the same manner as the previous ones. Dr. Hare observes that it has often been found that, when small injections of the Nitrate with an ordinary glyster-pipe have been employed in cases of dysentery, and the patient has died, the ulcers which had been reached by the Nitrate were perfectly healed, whilst those beyond the reach of the application had gangrened, and death had ensued. From this, Dr. Hare rationally concludes that, if the ulcers of the rectum healed under the application of the Nitrate to their surface, those beyond, which cannot be reached by means of the ordinary injection apparatus, would also heal, if subjected to the same application. He consequently employs the long flexible tube, and by this means applies the Nitrate in solution to the whole surface of the transverse colon, the chief seat of dysenteric ulcerations. Dr. Hare, who has extensively followed this mode of treatment, as well as many other medical officers in India, bear witness to the great success which has followed its adoption. It is perfectly simple and rational, and in every case deserves a fair trial. In conclusion, it should be remembered that it is not *always* easy or even practicable to introduce the tube as recommended above. The natural sharp fold at the junction of the rectum and colon may cause obstruction, and Mr. Earle has shown that the bowel not unfrequently makes a horizontal curve to the right before descending into the pelvis. Great caution is, therefore, necessary in the introduction of the tube, otherwise the intestine may be perforated or other serious mischief ensue. Dr. Delioux* insists strongly on the superiority of albuminous enemas prepared by adding gr. iij. of the Nitrate and gr. iij. of Common Salt, both in separate solutions, to the white of an egg, diluted with fl. oz. viij. of distilled water. Each enema requires to be freshly prepared at the time required.

* Bull. Gén. de Thérap. 1851.

320. *In Chronic Dysentery*, the above treatment, with some modifications, is equally applicable. Dr. M'Gregor,* who has had extensive experience in this disease as it occurs in India, recommends an enema composed of Argent. Nit. gr. xx., in f℥ij. of Mucilage combined with Opium. This, he states, will in most cases be retained, and greatly relieves the tenesmus. Internally, he gives the following pills:—Opii (Hill) gr. xij., Argent. Nit. gr. ij., Pulv. Ipecac. gr.vj., Ol. Caryoph. gutt. vj., M. ft. pil. vj., one to be taken every second hour. He adds that the effect is often wonderful, but the action of such a substance must be carefully watched, particularly on the stomach, though its effects on this organ are less marked than those of the Sulphate of Copper or Acetate of Lead, while its action on the ulcers is much more beneficial. The Nitrate, as a remedy for Dysentery, was employed in the form of Enema by Dr. Osborne, of Dublin, in 1831; and Dr. Hudson† states that it has been in common use in Dublin since that date. He adds, that in his own practice as well as in that of others, the best effects have followed its use. In conclusion, I would add my testimony to its efficacy when given internally. I have employed it extensively in the later stages of Acute and in Chronic Dysentery, in doses never exceeding a grain and a half daily, in combination with Dover's Powders; and in almost every instance its administration has been followed by speedy and permanent benefit. Its effects are often very remarkable. I have never seen any ill effects follow its use, although given to children of two years old.

321. *In Ulceration of the Stomach*, the Nitrate of Silver is a valuable remedy, inducing a healthy action of the mucous membrane, and apparently favouring the process of cicatrization. It may be given in the form recommended in Dyspepsia and Gastralgia.

322. *In Jaundice*, the Nitrate, in doses of gr. ¾ twice daily, is recommended on theoretical principles by Dr. Peebles‡ (U.S.). He relates an illustrative case, in which the Jaundice disappeared on the third day after its first administration. He advises it, particularly, in Jaundice arising from a deranged state of the mucous membrane of the stomach and primæ viæ. It should be given on an empty stomach.

323. *In Cholera*, Mr. Garlike§ states that he has successfully employed the Nitrate of Silver. The mode of application which he advises is to inject into the colon, by means of a long flexible tube, a solution of the Nitrate (gr. xvj. in Aq. Dest. ℥iv.). Ten minutes afterwards, he administers another enema, composed of T. Opii. f℥iv., in f℥vj. of gruel. In the first case in which

* Med. and Surg. Journ. of N. W. Provinces, 1845.

† Dublin Journal, vol. xvii. p. 240.

‡ Amer. Journ. of Med. Sciences, July, 1849 (R).

§ Med. Times, Jan. 27, 1849.

he employed this treatment, the patient was in a state of collapse, apparently sinking fast. After the introduction of the Nitrate, the purging ceased, but the vomiting continued; after forty-eight hours, the bowels acted naturally. A complete cure followed. Several others were treated in precisely the same way, and with "equally happy results." The quantity of the Nitrate employed must be regulated according to the age and strength of the patient, and the urgency of the symptoms. It merits a further trial. Dr. Barry* used it internally with great success (gr. j. after each stool) in an epidemic of this disease at Assam, in 1853.

324. *Diseases of the Eye. In Purulent and Gonorrhœal Ophthalmia*, the Nitrate of Silver is a most valuable application. Mr. Guthrie† recommends an ointment composed of Argent. Nit. gr.x., Adipis ʒj., Liq. Plumb. Diacet. ♏xv. He directs the salt to be reduced to an impalpable powder (this is an important point), and to be thoroughly incorporated with the lard and Liq. Plumbi; great care should be taken in its admixture, and no metal utensil should be used in preparing it. It may be applied either with a fine brush or with the top of the little finger. It causes great pain for an hour or two, but when this subsides, much relief is experienced. Strict antiphlogistic remedies, blood-letting, calomel, opium, and antimony, form the constitutional treatment. Fomentations, either hot or cold, according to the sensations of the patient, should be also employed. A strong solution (gr. x. Aq. in fʒj.) is preferred by many practitioners, a few drops applied twice or thrice daily; should this cause great pain, a small portion of olive oil, dropped into the eye, affords relief. Relays of leeches below the eye or to the temples are, in many cases, better than general blood-letting. Mr. Walker‡ advises applying the Nitrate in substance freely to the conjunctiva for a few seconds once a day, insinuating the point beneath the margin of each lid. It is not admissible in that form of Ophthalmia which supervenes on Small-pox. Mr. Critchett§ lays it down as a rule that, in *genuine Catarrhal Ophthalmia*, the Nitrate is a specific, and that it is useful in all cases in which the conjunctival discharge is purulent or muco-purulent, provided that the discharge is limited to that membrane, and has not extended to the cornea and other tissues of the eye. Many surgeons are opposed to the use of these powerful means to so delicate an organ as the eye; amongst others, Mr. Walton‖ opposes their use. He considers that applications, such as the above, which cause actual pain, are productive of harm; that

* Ind. Ann. of Med. Sci. i. p. 449.

† Med. and Phys. Journ. vol. lx. p. 190.

‡ The Oculist's Vade Mecum, p. 82.

§ Ranking's Abstract, vol. xx. p. 135.

‖ Clinical Lectures, Med. Times, Nov. 4, 1848.

they greatly irritate the conjunctiva, and induce chronic inflammation. In his own practice, he never employs a stronger solution than two grains to the ounce, and attaches great importance to the frequent use of the application. The eye should be well cleansed of purulent matter, previous to its application. (See also COLLYRIUM.)

325. *In the Purulent Ophthalmia of Infants*, Dr. Mackenzie* states that he derived much benefit from a solution of the Nitrate (gr. iv. in Aq. Dest. f℥j.). This he applies by means of a fine camel's-hair brush, to the conjunctiva, having previously cleansed it with the following lotion:—℞ Hyd. Bichlor. gr. j., Ammon. Hydrochlor. gr. vj., Aq. f℥viij. Small blisters are also advised behind the ears.

326. *In Scrofulous Ophthalmia*, a collyrium composed of Argent. Nit. gr. iv. — vj. in Aq. f℥j. is stated to be efficacious, but, in my experience, most benefit is derived from the mode of treatment first proposed by Mr. Wormald, and subsequently advocated by Drs. Hocken† and Lanyon.‡ It is as follows: the eyelid is put on the stretch, so as to present a smooth surface, and, after being slightly moistened, the caustic is to be passed once or twice lightly over it, so as to produce a slight blackness of the skin. A single application often suffices to remove altogether the lachrymation, the photophobia, &c. Iodine, applied in the same manner, is equally efficacious. Another mode of treatment proposed by M. Tavignot,§ is to pencil the lining membrane of the nares with the Nitrate in substance, or with an ointment containing one-tenth of this salt. For adults, he prefers a snuff composed of 2 parts of the Nitrate, 1 of Cantharides, 1 of Camphor, and 30 of Iris powder. He speaks highly of the efficacy of this treatment. *In Ophthalmia Tarsi*, a pencil of the Nitrate, lightly passed over the diseased surface, is advised by Quadri of Naples and others. *In Epiphora*, a solution of the Nitrate (gr. iij. ad Aq. f℥j.) once or twice daily is sometimes productive of great benefit. *In Pterygium*, especially when this is combined with Catarrhal Conjunctivitis, marked benefit occasionally follows its use. (Mackenzie.‖)

327. *In Indolent Ulcers of the Cornea*, which resist milder applications and antiphlogistic measures, a collyrium of the Nitrate of Silver (gr. j.—iv. ad Aq. f℥j.) will, in most cases, establish a healthy action, and accelerate the cure.

328. *In Opacity of the Cornea*, the above lotion will also be found serviceable. Mr. Bell and Dr. Hamilton have also testified to the efficacy of this application.

* Dis of the Eye, p. 403.
† Lancet, Nov. 19, 1844.
‡ Ibid. June 21, 1845.
§ L'Union Méd. No. lxxix.
‖ On Dis. of the Eye, p. 233.
¶ Monthly Journ. of Med. Science, April, 1851.

329. *Diseases of the Genito-Urinary System. In Amenorrhœa*, Dr. Lubanski* speaks highly of the efficacy of applying the Nitrate in substance lightly to the os uteri, at the time of the expected appearance of the menses. He states that in all cases, excepting where the Amenorrhœa is symptomatic of some other disease, it proved effectual. It has also been found successful by Dr. Egan,† who recommends its employment in obstinate cases.

330. *In Leucorrhœa*, the Nitrate in solution (gr. iij., Aq. Dest. f℥j.) is advised by Dr. Jewel ‡ as a vaginal injection. It may, however, be used of a much greater strength than this, or may even be applied in substance. Dr. Hudson§ states that, in *Uterine Leucorrhœa*, he has derived great benefit from the internal administration of the Nitrate. He relates several cases illustrative of its efficacy. The following formula is advised:—℞ Argent. Nit. gr. ¼, Opii gr. ¼, Pulv. Rhei; Ext. Hyoscyam. āā gr. j., M. ft. pil. in die sumend.

331. *In Gonorrhœa*, the Nitrate in solution often proves an effectual injection Ricord advises in solution (gr.x. ad Aq. f℥viij.) at the outset of the attack; he states that, by this means, the disease may be invariably cut short, in the first stage. A similar opinion is expressed by Dr. Graves, Mr. Acton, and other experienced writers. The injection is to be repeated twelve times, desisting, however, if the discharge is rendered thin and bloody, an ordinary effect of the application; a weak solution of Zinc or Alum should then be substituted, and continued until the discharge ceases. Antiphlogistics, Aperients, and Copaiba should be employed at the same time. The above practice has been objected to, as being likely to induce Orchitis, and other bad consequences; but there appears to be no real foundation for this fear. (See INJECTIONS.)

In the Chronic stage of Gonorrhœa, an injection of Argent. Nit. (gr. j.—iv. in Aq. Dest. f℥j.) often proves serviceable.

In Gonorrhœa in the Female,‖ Ricord advises the Nitrate to be applied, in substance, to the sides of the vagina and neck of the uterus. At first, the discharge rather increases, but after a few repetitions it is either much diminished or altogether arrested. It has also been successfully employed by Dr. Jewel,¶ and Dr. Egan** states that he has found it very efficacious.

332 *In the early stage of Cancer of the Uterus*, Dr. Ashwell†† states that he has derived much benefit from the application of Nitrate of Silver in solution, thus: ℞ Argenti Nitratis gr. xxx. —xl., Aquæ Destil. f℥iv., M. ft. lotio, to be applied by means of a speculum, and states that he has found it particu-

* Ann. d'Obstet. 1843.
† Dublin Journal, 1848.
‡ On Leucorrhœa, 1830.
§ Dublin Journ. vol. xvii. p. 238.
‖ Bull Gén de Thérap. June, 1835.
¶ Obs. on Leucorrhœa, 1830.
** Dublin Journ. of Med. 1848.
†† On Diseases of Women, p. 393.

larly useful in those cases where the mucous membrane lining the channel of the cervix or around the margin of the os uteri has been red and tender, where there have been obvious ulcerations or a tendency to softening. The character of the mucous membrane generally improves after three or four applications.

333. *In Ulceration of the Os and Cervix Uteri*, the application of the solid Nitrate has been advised and practised by the highest obstetric authorities of the present day. The real amount and character of the disease should, in the first place, be clearly ascertained by means of the speculum. That the practice is not devoid of danger is shown by a case related by Dr. Williams, of Swansea,* in which, in consequence of the inflammation caused by the application of the caustic, the edges of the Os Tincæ were united so closely as to require to be separated by an operation, to allow the escape of the menses. *In Inflammation of the Cervix*, without ulceration or hypertrophy, Dr. J. H. Bennett† regards the Nitrate as the most advantageous of all caustics.

334. *In Pruritus Pudendi*, Dr. A. T. Thompson‡ states that in one very obstinate case, which resisted all other remedies, he found decided benefit from pencilling the parts once or twice daily with the following solution:—℞ Argent. Nit. gr. ij., Acid Nit. Dil. ɱij, Aq. fʒj., M.

335. *To Stricture of the Urethra* the application of the solid Nitrate has been held in high repute. In some cases, it appears to be beneficial. A sound should be first passed down to the seat of stricture, and subsequently a bougie, or an instrument for the purpose, armed with the caustic, should be passed down and *firmly pressed on the stricture.* Unless this point is carefully attended to, the caustic will come in contact with the urethra in front of the constricted portion, and cause ulceration. This, however, is not the only danger, as the caustic has, in many recorded cases, become loose, and remained in the passage, an accident likely to be followed by severe consequences. Serious hæmorrhage, also, occasionally follows the application, and it is, on the whole, an unsafe mode of treatment; although, in cases where there is some degree of permanent stricture which is exceedingly irritable, a slight touch with a caustic bougie will often afford speedy relief. It should never be employed if the urethra has been damaged by the previous use of the common bougie or catheter; in this case it will *produce* spasm. Sir B. Brodie§ objects to the use of the caustic bougie on four grounds:—1st. Although the caustic often relieves the spasm, it also frequently induces it. 2nd. Hæmorrhage is a more frequent consequence

* Med. Times, March 8, 1850.

† On Ulceration of the Uterus, p. 393.

‡ Cyc. Pract. Med. art. Pruritus.

§ On Diseases of the Urinary Organs, 3rd Ed. p. 61.

of the caustic than the common bougie. 3rd. Where there is a disposition to rigors, the caustic is almost certain to produce them. 4th. Unless used with great caution, it may produce inflammation of the parts behind the stricture, terminating in the formation of abscess. It should only be employed after the hot bath, opium, and other remedies, have failed.

336. *Spermatorrhœa.* Sir E. Home was the first who recommended cauterizing the urethra as a means of arresting involuntary spermatic discharges. It was subsequently introduced into France, and adopted by Lallemand, who strongly advocates the practice as the most certain and efficacious. In England it has also met with an able advocate in Dr. Ranking of Norwich.* There can be no doubt, however, that, used injudiciously, it is capable of doing much mischief. In obstinate cases of *Prostatorrhœa*, Prof. Gross considers that cauterization once a week may be beneficial.

337. *To Primary Chancres*, the Nitrate of Silver is one of the best local applications. Immediately after the first appearance of a chancre, the caustic should be applied in substance freely to the whole surface, so as totally to destroy its character. It is believed that, by adopting this practice in the earliest stage of the sore, the venereal poison is decomposed, and its absorption into the system prevented. If the chancre has existed some days, and the poison has become absorbed, the application of the caustic can be of little value. To indolent bubos the Nitrate is sometimes used locally, with the view of stimulating the parts and hastening the process of absorption.

338. *In Chronic Inflammation of the Bladder*, Dr. McDonnell advises injecting into the bladder a solution of the Nitrate of Silver (gr. ij.—v., Aq. Dest. f℥j.). He directs the bladder to be first washed out with warm water, the solution to be then injected and allowed to be retained for a few seconds, never above a minute. Should the urine be rendered bloody or shreddy, fomentations and anodynes should be employed. In all cases (in one the patient was seventy-two years old) the cure was permanent. The quantity of injection used at one time should never exceed f℥iv.†

Spasmodic Diseases. 339. *In Chorea*, much benefit occasionally results from a prolonged course of the Nitrate of Silver. It has been successfully employed by Drs. Unwins,‡ Prion,§ Franklin,‖ Crampton, and others. It should be commenced in small doses, which may be gradually increased. The great objection to its use is the danger of its discolouring the skin.

* Lancet, Oct. 14, 1843.

† Ranking's Half-Yearly Obs. vol. x. p. 89.

‡ Ed. Med. and Surg Journ. vol. viii. p. 408.

§ Med. and Phys. Journal, vol. lii. p. 262.

‖ Ibid vol. xxxii. p. 272.

340. *In Epilepsy*, the Nitrate has been successfully employed by Drs. Wilson, Sims, M. Baillie, Roget, Lombard, Copland, and Carron. Its efficacy, however, is less uniform than the Salts of Zinc and Copper, and the danger of "turning blue" from a long persistence in the remedy has tended to bring it into comparative disuse.

341. *In Hooping Cough*, after the acute stage is passed, the Nitrate is strongly advised by M. Trousseau. He uses the subjoined formula:—℞ Argent. Nit. gr. ½, Syr. Simp. f℥ss., Aq. Dest. f℥j., M. The dose for a child of one year old is a teaspoonful. It is also spoken of in high terms by Berger.* Dr. E. Watson† relates several cases cured by the application of a solution of the Nitrate (gr. xv., Aq. f℥j.) to the glottis in the manner advised in Croup.

342. *In Spasmodic Asthma*, the Nitrate of Silver given in the intermissions, in doses of a grain daily, will be found in many cases to reduce the force and frequency of the paroxysms. I have thus employed it with decided benefit. *In Angina Pectoris* it is also favourably spoken of by Dr. Copland.‡

343. *Diseases of the Mouth and Throat. Croup.* A strong solution of the Nitrate of Silver (gr. xx., Aq. Dest. f℥j.) was first employed as a local application in this disease, by Prof. Mackenzie,§ of Glasgow, in 1825; more recently, it has been successfully employed by Drs. Horace Green, Kesteven, Blakeman, and Bryan. The last physician‖ employed a stronger solution (℈ij.—℥j., Aq. Dest. f℥j.). A small piece of sponge, attached to a stick of whalebone, is to be dipped in the solution, and the tongue being depressed by the handle of a spoon, it is to be applied freely, for a few seconds, to the larynx. Great immediate relief and subsequent cure are stated to have followed its application in several cases. The employment of the Nitrate instead of the solution, not only in Croup, but *in all Laryngeal and Pharyngeal Inflammations*, is recommended by Dr. Peronneau, of Paris. Dr. Hatin¶ also employed it in many cases, and in the majority with decided advantage. An assistant is directed to place the child on his knees; with one hand he fixes the hands, with the other he holds the head firmly. The operator places himself in front, holding in his left hand an instrument to keep the mouth open, and depress the tongue. In the right hand he holds a *porte-pierre*, bent like a sound, containing a piece of the caustic projecting some lines. The tongue being depressed, the tube containing the Nitrate is passed into the posterior fauces, and rapidly passed over all points for a second or two. The

* Ann. de Thérap. 1846.
† Dublin Med. Press, Feb. 1850.
‡ Dict. of Pract. Med. vol. i. p. 68.
§ Edin. Med. Journ. April, 1825.
‖ British Record, Dec. 1, 1848.
¶ Rev. Médicale, Oct. 1837.

operation is to be repeated twice; the second almost immediately after the first. It is said to afford almost immediate relief. Moist warm air diffused through the chamber, and the application of hot water externally to the throat, greatly aid the above measures, and should *never* be omitted. *In Functional Aphonia*, arising from paralysis of the vocal cords, Dr. Gibb has found the application of showers of solution of Nitrate of Silver to the larynx, in the form of spray, attended with the best results.*

344. *In Diphtheritis*, the local application of a solution of the Nitrate is strongly advised by Dr. West, Mr. S. D. Brown, and others. Mr. Brown† advises that the solution should not be of a less strength than ʒj. to fʒj. or fʒij. of water. Its use has been extended with reputed benefit to some forms of *Bronchitis*, *Hysterical Cough*, and *Aphonia*. Trousseau and Belloc, Dr. Ebert, and others, strongly advocate the use of the Nitrate (gr. iij., Sugar ʒj., in impalpable powder) by the means of insufflation. (See Part II.) Dr. Horace Green‡ employs injections of the Nitrate into the bronchi in certain cases, but the practice seems to be not devoid of danger even when practicable. *In Diphtheria*, the application of the solid Nitrate to the throat has been advised; but the practice is condemned by Dr. Ranking,§ who advises either a twenty-grain solution of the Nitrate or a gargle of Hydrochloric Acid.

345. *In Cynanche Maligna*, Prof. Mackenzie‖ speaks highly of the efficacy of applying a solution of Argent. Nit. (gr. xx.—Aq. fʒj.) to the mucous membrane of the throat. It may be applied with a camel's-hair brush, once or twice a day, according to the severity of the symptoms. It is stated to be very valuable in these cases.

346. *In Hypertrophy of the Tonsils*, the application of the solid Nitrate is advised by Mr. Cusack.¶ It is to be applied to successive portions of the surface, so as to produce a succession of small eschars. By this means a cure is effected in about six months.

347. *In Aphthous Ulcerations of the Mouth*, the Nitrate, applied in substance to the ulcers, is spoken of by Dr. Symonds** as an efficient and most decisive remedy.

348. *In Ptyalism*, Dr. Symonds†† states that, in his experience, the best local application is the Nitrate of Silver, either in substance or in a strong solution (ʒj. — Aq. fʒj.), applied, by means of a small camel's-hair pencil, or sponge, to the gums.

349. *Exanthemata and Cutaneous Affections*. *In Small-pox*, the local application of the Nitrate to the pustules has been pro-

* Med. Times and Gaz., Jan. 2, 1864, p. 46, and Jan. 16, 1864, p. 75.
† Med. Times, Dec. 28, 1850.
‡ Trans. of Med. Soc. of New York, 1855, p. 238, and Brit. and For. Med. Chir. Rev. 1856, p. 250.
§ On Diphtheria, 1859.
‖ Op. cit.
¶ Dublin Journ. Jan. 1839.
** Library of Medicine, vol. iv. p. 35
†† Ibid., vol. iv. p. 37.

posed as a means of arresting the disease in the vesicular or papular stage, and also of preventing subsequent "pitting" or cicatrization. This treatment has been particularly recommended by Velpeau, Bretonneau, and Serres.* The apex of the pustule is directed to be removed, and a sharp pencil of the Nitrate to be inserted into each; but the process is tedious, painful, and, as has been shown by Girardin, not without danger. A solution of the Nitrate (gr. xx.—Aq. fʒj.) has been successfully substituted; it is to be applied lightly over the surface by means of a camel's-hair brush. Dr. Rowland† prefers a stronger solution (ʒj. ad Aq. fʒj.), and speaks highly of its efficacy. He regards a weaker solution as irritating and insufficient. Mr. Higginbottom‡ recommends a still stronger solution (℈iv.—Aq. Dest. fʒiv.). It is not necessary to puncture the pustules. The solution should be applied on the fourth or fifth day of the eruption. As a gargle to the throat in small-pox, he uses a solution of Arg. Nit. ℈j. ad. Aq. Dest. fʒiij.

350. *In Herpes Zoster, or Shingles*, a similar mode of treatment is recommended by Mr. Erasmus Wilson.§ He states that it acts beneficially, and brings the cure more speedily to a termination than if left to itself.

351. *In Erysipelas*, the Nitrate of Silver, as a local application, was first proposed by Mr. Higginbottom,‖ as a means of arresting the progress of the inflammation. To effect this, it is necessary that the Nitrate should be so applied as entirely to encircle the inflamed part. Previous to its use, the surrounding skin should be well washed, and afterwards dried; the Nitrate may then be applied, care being taken that no interstices are left, through which the inflammation may pass and extend itself. This measure is often effectual, but, it must be confessed, occasionally fails—probably in a great measure from the careless manner in which it is applied, and the neglect of proper caution. Another form of application also proposed by Mr. Higginbottom, is to pencil the whole of the inflamed surface with the Nitrate, either in substance or in solution, so as to cause a slight amount of discoloration. The parts are then to be exposed to the air and kept cool. The Tincture of Iodine has been found more effectual by Dr. Davies,¶ of Hertford, Dr. Pereira,** and others.

352. *In Pemphigus*, after the bullæ have burst, and excoriations remain, Mr. E. Wilson†† found that the best application to promote a cure was a solution of the Nitrate of Silver (gr. ij. ad Aq. fʒj.). *In Molluscum Simplex*, he advises touching the

* Archiv. Gén. de Méd. vol. viii.
† Med. Times and Gaz., Dec. 13, 1856.
‡ Med. Times and Gaz., July 11, 1863, p. 54.
§ On Diseases of the Skin, p. 210.
‖ On the Uses of the Nitrate of Silver, Ed. 2, 1829.
¶ Selections in Pathology, 1839.
** Mat. Med. vol. i. p. 968.
†† Op. cit. p. 192.

tumours with the solid Nitrate; and, in some instances, he opens the tumour with a lancet, and applies the Nitrate to the interior. *Erythema Infantum* is greatly benefited by being pencilled with a weak solution of the Nitrate (gr. i.—ij. ad Aq. fʒj.). *In Frambœsia, or Yaws*, Mr. Mason* derived great benefit from the direct application of the Nitrate to the tubercles; and in one recent case, this treatment being continued for a few months, the papulæ disappeared, and no other tubercular yaws were formed.

353. *Encysted Tumours*, according to the experience of Mr. Erasmus Wilson,† are effectually cured by laying them open with a lancet or bistoury, pressing out their contents, and injecting the cyst with a solution of the Nitrate of Silver, or touching its internal surface with the solid caustic. He much prefers this plan to the painful process of excision.

354. *In Scrofulous enlargements of Glands, &c.*, Mr. Balman‡ considers that much mischief is done by the indiscriminate use of Iodine frictions, and prefers, in the absence of all inflammatory action, pencilling the part with the solid Nitrate a few times, at intervals of a week or ten days. He thinks it milder and safer than the use of blisters, the action of which is more diffusive and irritating.

355. *In Scarlatina* Dr. Brown§ (U.S.) advises the application of a solution of Nitrate of Silver (ʒj.—Aq. fʒj.) to the fauces, whether ulceration be present or not. It is to be used once or twice daily. He states that previous to adopting this treatment he lost half his cases, but subsequently, during the same epidemic, he lost only 1 in 50.

356. *In Tinea Capitis*, Dr. Graves‖ advises the local application of a solution of Argent Nit. (gr. x.—xv.—xx. to Aq. fʒj.). He directs it to *be strongly rubbed into each spot*, for which purpose a small piece of sponge, covered with fine linen, and tied to the end of a slender stick, should be employed. When a large portion of the scalp is affected, it requires some perseverance to apply the solution effectually. The hair should be cut short, not shaved; the scales should then be removed by diligent ablution. The solution should be applied, and repeated, not oftener than once a week. The scalp should then be covered with a dressing of Ungent. Cetacei, which is to be renewed four times daily, so as to keep the head constantly moistened with it. Three days after the first application of the caustic, the head may be washed with yellow soap and water twice a day, and the ointment replaced

* Edin. Med. Surg. Journ. vol. xxxv.

† Op. cit. p. 409.

‡ Med. Gaz. Aug. 22, 1851.

§ Philadelphia Med. Exam. Feb. 1850 (R).

‖ Dublin Journ. vol. xviii. p. 241, and Clin. Lectures, vol. ii. p. 352. 1848.

after each dressing. In this, as in other cutaneous affections of long standing, it should always be a matter for consideration how far it is safe suddenly to check it. Before attempting a cure, an issue or seton may, if deemed necessary, be established at a distant point.

357. *In Porrigo, Psoriasis, Impetigo,* and other *Cutaneous Diseases* which have resisted milder remedies, the solid Nitrate, locally applied, has been found effectual. It should not be applied extensively at once, but small portions should be successively cauterized at intervals of a few days. *In Porrigo,* Dr. Pereira* says that he has never known the practice to fail, or to cause the loss of hair, although in one case, a child, fever and delirium were produced by its excessive use. *In Impetigo,* an aqueous solution is sufficient.

358. *To Sore or Chapped Nipples* the Nitrate of Silver is very effectual. The nipple should be first carefully dried, and touched with a sharp point of the Nitrate, care being taken to insinuate the pencil into the fissures. The part is then to be washed with a little warm milk and water. The pain which this causes soon subsides, and a few dressings of Ung. Zinci will complete the cure. This treatment, which was first proposed by Dr. Hannay,† has been found very effectual.

359. *To Corns* the local application of the solid Nitrate is advised by Mr. Higginbottom.‡ The corns should be first soaked in hot water, and pared down. The Nitrate should be lightly passed over the surface, and repeated every ten or twelve days until the corn is destroyed. *In removing warts* it is also very effectual; it may be repeated once or twice a week until their removal is effected. *In Onychia* a resolution of the disease has apparently followed blackening the diseased surface with the Nitrate in substance or in solution. Mr. Liston,§ indeed, regards it almost as a specific. *Severe hæmorrhage from leech bites, or after the extraction of teeth,* is often effectually arrested by applying the Nitrate, sharpened to a point, to the bleeding part.

360. *In many forms of Ulcers,* the Nitrate is effectual in establishing a healthy surface, and promoting cicatrization. *To healthy Ulcers, if extensive or if exuberant granulations exist, to weak and indolent Ulcers, and also to irritable Ulcers,* the Nitrate, either in substance or solution (gr. j.—vj., Aq. Dest. fl. oz. j.), may be used with advantage. Mr. Higginbottom‖ advises, when the ulcer is not very extensive, and free from inflammation, to apply the Nitrate in substance to the sore, and also very lightly over the surrounding skin; a scab forms; and in most cases,

* Mat. Med. vol. i. p. 970.
† Med. Gaz. vols. v. and xiv.
‡ Op. cit. p. 177.
§ Elements of Surgery, part ii. p. 317.
‖ Op. cit. p. 112.

when suppuration ceases, and the scab is removed, cicatrization is complete. After the application of the Nitrate, the ulcer should be covered with goldbeater's skin, and exposed to the light. If suppuration continues, an incision with a lancet is made in the centre of the eschar, to allow the escape of the pus. Mr. Higginbottom strongly insists on the superiority of the ordinary brittle stick Nitrate of Silver to the "tough lunar caustic points" which have been introduced of late years. The latter, on account of greater insolubility, he considers worthless as an application in surgical cases.*

361. *Other Diseases. In Deafness depending upon a thickened state of the Membrana Tympani*, Mr. Toynbee† states that a great improvement, if not a total cure, will follow the use of a solution of the Nitrate (ʒss.—ʒj. ad Aq. fʒj.). Proceeding from the exterior of the orifice of the meatus, the passage may be touched to an extent varying from one-half to two-thirds of its length, every three or four days. In some cases, the Membrana Tympani may also be washed with a solution (gr. vj. ad Aq. fʒj.). When congestion exists, leeches should be applied at the same time, below, not behind the ear. It is advisable to combine this treatment with an alterative course of Pilul. Hydrargyri, or Hydrargyrum c. Cretâ. Dr. T. M'Call Anderson recommends a similar local treatment in *Eczema* of the external auditory passages (*eczema meatus*).‡

362. *In obstinate Otorrhœa*, Mr. Wilde§ advises the application of the Nitrate, *lightly*, to the external auditory passage.

363. *In Coryza*, M. Tessier‖ speaks highly of the efficacy of pencilling the interior of the nares with a solution of the Nitrate of Silver. A similar treatment has been advocated by Dr. Lockwood (U.S.).

364. *In Insanity*, observes Dr. Copland,¶ the Nitrate of Silver has been recommended by Agricola and Kesler, and in circumstances truly indicating the propriety of tonics, and when insanity has been occasioned by depressing and exhausting causes, and in purely nervous cases, it may prove of service. It has been considered as more particularly suited to the complication of mental diseases with epilepsy. When, however, this association is dependent upon vascular or structural disease of the encephalon, little or no benefit can result from it. He adds that in one case in which he prescribed it, he was obliged to discontinue it; but that in two others, of melancholia, with chronic irritation of the digestive mucous surface, he found it of service.

* Lancet, July 4, 1863, p. 14.
† Monthly Journal, March, 1849.
‡ Med. Times and Gaz. Aug. 8, 1863, p. 138.
§ Dublin Journal, Jan. 1844.
‖ Ranking's Half-Yearly Abstract, vol. ix. p. 242.
¶ Dict. of Med. vol. ii. p. 533.

365. *In Hysterical Headaches*, Dr. Graves* speaks highly of the efficacy of the Nitrate of Silver in considerable doses. When the paroxysm has abated, the greatest benefit, he observes, may be derived from the Nitrate, continued for five or six days at a time, in doses of gr. ss., four times or even six times daily. When the bowels are constipated, he states that there is no better combination than the Nitrate with minute doses of Pil. Coloc. Co., a formula recommended by Dr. J. Johnson, and which he has found invaluable, not merely in the headaches of hysterical young women, but in those of men, particularly the habitual *stomach headache*, to which delicate and literary men are so subject. *In Facial Neuralgia*, Romberg† often found the Nitrate (gr. j. several times daily) of great, but not of permanent benefit.

366. *In Chronic Arthritis, particularly in that of the hip joint*, M. Jobert‡ employs friction of the diseased part with an ointment composed of from four to twelve parts of the Nitrate, and thirty of lard. He commences with the weakest strength. A modification of this has since been very generally adopted in France, particularly by Briquet and Guerard.§ The ointment which they employ is composed of from one to five parts of the Nitrate, and thirty-two of lard. This is rubbed in daily over the diseased part, which is then covered with a poultice to promote absorption. The treatment is continued until the disappearance of the disease. The stronger ointment causes great irritation. It is reported to be a successful mode of treatment.

367. *In Articular Effusions*, a solution of the Nitrate (gr. x., Aq. f℥j.) or the application of the caustic in substance, drawn across the joint, previously moistened, at intervals of about a quarter of an inch apart, has been successfully employed by Dr. Moritz,‖ of Coblentz. In either case the epidermis rises in blisters containing serum. When this is dissipated, the application is to be repeated. In twenty cases in which Dr. Moritz employed this treatment, a cure was effected, whether the effusion was the result of gout, rheumatism, scrofula, or wounds. *In Hydrocele*, Dr. Parker advocates the practice of applying the Nitrate in substance to the *tunica vaginalis*, after the removal of the effused fluid. Iodine in ordinary cases is preferable.¶

368. *As a preventive against Hydrophobia*, Mr. Youatt, a most competent authority, extols the Nitrate of Silver. Immediately on the bite being received, the caustic should be freely applied to the wound; an eschar forms, and the ulcer should be allowed to discharge freely for some weeks. Mr. Youatt states that he

* Clinical Lectures, vol. ii. p. 314.
† Dis. of Nerves, i. p. 54.
‡ Bull. Gén. de Thérap. June, 1841.
§ Med. Times, vol. xvii. p. 214, 1848.
‖ Med. Zeitung, No. xxvi. 1842.
¶ New York Journal of Medicine Jan. 1854.

has employed it four times on his own person, when bitten by rabid dogs, and that, by the early and free use of this remedy, he has experienced no ill consequences. Others, however, have not been so successful in its use, and it appears, on the whole, that excision of the part is decidedly the safer practice. When, however, the Nitrate is used, it should be sharpened to a point, and applied freely to *every* recess and sinuosity of the wound. The same remarks apply to the *bites of the Cobra and other venomous snakes.*

369. As an application to *Dissection Wounds*, it is advised by Mr. Stafford. It should be applied to the parts surrounding the wounds, and along the inflamed absorbents, if inflammation has supervened. It seemed, in some cases, to arrest the progress of the disease. It should be applied as early as possible, and not allowed to interfere with the constitutional and other treatment.

370. *To Burns* Mr. Skey* directs in the case of infants or young children that the burnt surface, if not very extensive, be washed with a solution of the Nitrate (gr. v.—vj. ad Aq. f℥j.), and immediately afterwards enveloped in cotton wool. For adults, the strength may be gr. xij.—xv. to Aq. f℥j.). Should pain return, the solution may be advantageously resorted to at any early stage of treatment.

371. *In Mercurial Palsy*, the Nitrate of Silver has been successfully employed by Dr. Sementini.† He commences with ⅛ of a grain daily, and gradually increases the dose. By the time it reached gr. iij., the good effects were manifest, and in twenty days more, a cure was effected. Similar results followed its use in five cases.

372. Argenti Oxidum. Oxide of Silver. Ag.O. Called also Argentum Oxydatum Fuscum and Argenti Protoxidum. Is a compound of Silver 93·103, Oxygen 6·897, in 100 parts; or 1 Eq. Silver = 108 + 1, Oxygen = 8 = 116, Eq. Wt.

Med. Prop. and Action. Tonic, sedative, and anti-spasmodic, in doses of from gr. ½ to gr. ij. Its medical properties are very similar to those of the Nitrate, over which it has the advantages of being milder in its operation, and of not so readily causing discoloration of the skin.‡ Its administration, however, cannot be continued more than five or six weeks with safety. Its local effects are slight compared with those of the Nitrate. It is a mild astringent and slight caustic. Its internal administration occasionally induces salivation. Dr. Thweatt§ considers that its action is specifically directed to the uterine system. *It is contra-indicated* in all inflammatory states, in plethora, and in sthenic diseases generally. The rules given for the administration of the Nitrate apply, with equal force, to this salt. As a tonic and astringent, it has been advised by Drs. Clendenning, Golding Bird, and Sir J. Eyre. Externally, it may be employed in the form of ointment (gr. lx. of the Oxide to oz. j. of

* Lancet, Oct. 5, 1861.
† Giornale de Ziscia, vol. xi.
‡ Dr. Butler Lane, Lancet, Feb. 6, 1841, and Med. Chir. Review, July 1840.
§ Amer. Journ. of Med. Sciences, July, 1849 (R).

Lard). Under its use, the stools assume a black colour. When the Oxide is united with certain organic substances, the silver becomes reduced. It is entirely *incompatible* with *creasote*. When mixed together, the creasote becomes oxidized, and great heat and even flame may be produced. This should be remembered in prescribing the Oxide in stomach affections.

Dose, gr. ½—gr. ij. twice or thrice a day in form of pill.

373. *Therapeutic Uses. In atonic Hæmorrhages, particularly from the Lungs and Stomach*, Sir J. Eyre* employed the Oxide of Silver, in doses of from gr. ½ to gr. j. thrice daily. He speaks highly of its efficacy. It is inadmissible when inflammation is present.

374. *In Menorrhagia*, occurring in relaxed habits and debilitated constitutions, the Oxide of Silver appears to exercise a very powerful influence. In 30 cases of Menorrhagia in which Sir J. Eyre employed this salt, complete recovery attended its use in each. In no instance, he states, was its use followed by that blueness of the skin which so commonly attends a prolonged use of the Nitrate. He deprecates its use in larger doses than three grains daily. Dr. Butler Lane also testifies to its value, and Dr. Thweatt considers the Oxide of Silver to be in Menorrhagia, what Mercury is in Syphilis, and Quinine in Intermittents.

375. *In Gastralgia*, *Gastrodynia*, and in those forms of *Dyspepsia* attended with irritable stomach, and pain in that viscus after taking food, Dr. Golding Bird† considers the Oxide as a highly valuable sedative and tonic. In these cases, he considers that it possesses all the good qualities of the Nitrate, without its inconveniences.

376. *In Pyrosis*, Sir J. Eyre found the Oxide particularly serviceable. In 10 cases in which he employed it, it was productive of manifest benefit. He gave it in doses of gr. ½ thrice daily. Strict attention to the bowels at the same time is necessary.

377. *In Gonorrhœa and Gleet*, it has been successfully employed by Dr. Lane. He relates several cases much benefited or cured, by the introduction into the urethra of a bougie smeared with the Oxide ointment (gr. v.—x., Lard ʒj.). It should not be used to the exclusion of other remedies. It was also found very serviceable in *Leucorrhœa*, administered internally.

378. *To Syphilitic Ulcerations*, Dr. Lane states that he has constantly used an ointment of the Oxide (gr. v.—x., Lard ʒj.), and that he has generally found it answer better than any other local application. In *Ulceration of the Cornea*, with thickening and congestion of the eyelids, and in some forms of *Ophthalmia*, an ointment (Oxide ʒj., Ol. Olivæ fʒj.), applied with a camel's-hair pencil, is said to prove highly beneficial.

* Remarks on some Exhausting Diseases, 8vo. Lond. 1845.

† Quoted by Dr. Lane, op. cit.

379. *Against Tænia or Tape-Worm*, the Oxide appears to act in some degree as an expellant. Dr. Whittel* relates two cases, in which the exhibition of this salt, in doses of gr. i.—ij. was followed by the expulsion of Tænia. It was given in combination with Potass. Bitartras.

380. ARISTOLOCHIA INDICA. Indian Birthwort. (Ishurmool, *Hind.*) *Nat. Ord.* Aristolochiaceæ. *Linn. Syst.* Gynandria Hexandria. *Hab.* Widely extended over India.

Med. Prop. and Action. The leaves of this plant have recently obtained great repute as an antidote *to the bite of the Cobra and other poisonous snakes.* Capt. Munro, F.L.S., in an able paper, adduces several instances in his own experience, and in that of others, in which the leaves were administered in very severe cases, with complete success. Mr. Lowther, who introduced the plant to notice, also bears witness to its efficacy. From two to four leaves pounded into a paste is about the usual dose; but Mr. Lowther relates a case in which the patient recovered, by simply applying the bruised leaves to the forehead, and at the same time plugging the nostrils with it.† The evidence adduced in favour of its efficacy is so strong, that it should be further tested, when opportunity offers.

381. ARMORACIÆ RADIX. The Root of Cochlearia Armoracia. Horse-radish Plant. *Nat. Ord.* Cruciferæ. *Linn. Syst.* Tetradynamia Siliculosa. *Hab.* England and N. Europe.

Med. Prop. and Action. Stimulant sudorific and diuretic, in doses of fl. oz. j.—fl. oz. ij. of the Infusion (Ph. Lond.) (Rad. Arm. ʒj., Sinapis ʒj., Sp. Arm. Comp. fʒj., Aq. Ferv. Oj.), or of fl. drm. j.—fl. drs. iij. of the compound spirit. When chewed, it causes a great flow of saliva; hence it is used as a masticatory. Taken internally, it causes a sensation of warmth, expels flatus, promotes digestion, and increases the appetite; if given infused in hot water, it readily proves emetic, and may be employed by itself, to promote vomiting, or to assist the operation of other emetics. It is also stimulant to the nervous system, and, in large quantities, proves heating to the whole body, and increases the secretions, particularly the urine and the perspiration. (Cullen.) Externally applied, it is irritant and vesicant. Its virtues depend upon a volatile oil ($C_3H_5NS_2$) identical with oil of mustard. In India, a perfect substitute is found in the root of Hyperanthera Moringa (Suhunjuna, *Hind.*), or Horse-radish Tree.

Offic. Prep. Spiritus Armoraciæ Compositus (Horse-radish sliced oz. xx.; Bitter Orange Peel dried oz. xx.; Nutmeg bruised oz. ss.; Proof Sp. Cj., Water Oij. Mix. Distil. Cj.). Dose, fl. drm. j.—iij.

Incompatibles. Alkalies and their Carbonates; the salts of Silver and Mercury.

382. *Therapeutic Uses. In Dropsical Affections occurring after Fevers, and attended with much debility*, Sydenham successfully employed the Infusion of Horse-radish; and, from its stimulant and diuretic properties, it is doubtless a valuable medicine in these cases. M. Rayer observes that, of all diuretics, it is the one which appears to him to offer the best chances of success.

* Lancet, 1850.

† Journal of the Horti-Agricultural Society of India, vol. vi. p. 1, 1847.

383. *In Rheumatic and Arthritic Diseases*, Horse-radish is very favourably spoken of by Cullen. Bergius advises that it should be cut into small pieces, and swallowed without chewing to the extent of a tablespoonful daily. Thus taken, none of the volatile parts of the root are lost. It may at the same time be applied externally in the form of poultice or embrocation.

384. *In Scurvy* it has long been esteemed as a remedy.

385. *In Paralysis*, the scraped root, made into a poultice, has been found very useful as a rubefacient. If allowed to remain on too long, it will cause vesication. The infusion (*ut supra*) may also be advantageously given internally.

386. *In Hoarseness arising from Relaxation*, the concentrated infusion, made into a syrup and used as a gargle, is recommended by Cullen. *In Toothache*, Horse-radish, if chewed slowly, affords occasional relief, by stimulating the salivary glands.

387. ARNICA MONTANA. Mountain Arnica. Mountain Tobacco. *Nat. Ord.* Compositæ. *Linn. Syst.* Syngenesia Superflua. *Hab.* Mountains of Europe, America, and Siberia.

Med. Prop. and Action. The leaves and flowers, in doses of gr. v.—x., are narcotic, stimulant, and diaphoretic; in larger doses, emetic and cathartic. The root (offic.) is aromatic and stimulant; but, in over-doses, it proves, like the leaves, an acro-narcotic poison, producing vomiting, purging, vertigo, tetanic twitchings of the muscles, and convulsions. Its active principle is asserted by Mr. Bastick to be an alkaloid, *arnicine*; by others, a bitter acrid extractive matter, *cytisin*. It has attained a high character in Germany as a nervine, but in England it is rarely employed. The powdered leaves are errhine. Externally applied, in the form of Tincture, it is used as a sedative and deobstruent, in *glandular swellings*, *rheumatism*, and *bruises*. Dose of the Infusion (drs. iv.—Aq. Oj.), fl. oz. iss. The infusion, when prepared for internal use, should be carefully filtered; a neglect of this precaution is likely to produce much gastric irritation.

Offic. Prep. Tr. Arnicæ (Arnica Root in powder oz. j.; Rect. Sp. Oj., prepared by maceration and percolation). Dose, fl. drm. ss.—fl. drm. iss.

Contra-Indications. 1, an inflammatory diathesis; 2, a predisposition to hæmorrhage; 3, internal congestions. (Duncan.)

388. *Therapeutic Uses. In Paralytic and Nervous Affections*, it has attained a high character in France and Germany. Alibert* speaks favourably of it. It is rarely employed internally in England. The indication of its favourable action is a pricking sensation in the paralysed limb.

389. *In Paralysis of the Bladder*, Dr. Meyer† considers that the plant is too much neglected. He relates a case of two months' duration, which disappeared after three days' use of the infusion of Arnica; and when the disease recurred at the end of two

* Elémens de Thérap. vol. i. p. 141.

† Brit. and For. Med. Rev. April, 1845.

months, it again yielded to the same remedy in the same space of time.

390. *In Amaurosis*, Arnica has long been a popular remedy in Germany. M. Maunoir,* of Geneva, relates an obstinate case, which completely yielded to the following formula:—℞ Ext. Arnicæ ʒij., Strychniæ Sulph. gr. xij., Conf. Rosæ q. s., ft. pil. cxl. Dose, one every night, gradually increased, until five are taken daily. The latter dose created much irritation.

391. *In Chronic Dysentery and Typhus Fever*, it is highly extolled by the German physicians.

392. *In Bruises, Sprains, and Lacerations*, Tincture of Arnica, used as a liniment, or diluted as a lotion, is held by many to greatly quicken the reparative process, and to afford almost immediate relief. It would, however, appear from the experiments made by Dr. Garrod† on ecchymoses produced by dry cupping, that the good effects derived from the Tincture as an external application depend mainly on the spirit of which it is composed. The addition of the Arnica to the spirit appeared to produce no appreciable results. It is, nevertheless, as an external remedy that it is chiefly employed in England.

393. Arsenicum. Arsenic. A metal not employed as a medicine in its native state, although it appears capable of acting as a powerful poison when taken into the stomach. Its chief value is as the basis of the following preparations:—

394. Acidum Arseniosum. Arsenious Acid. AsO_3. White Oxide of Arsenic. Arsenicum Album. White Arsenic., *vulgo* Arsenic, is a compound of Arsenic 75·76, Oxygen 24·24, in 100 parts; or 1 Eq. Arsenic = 75 + 3 Oxygen (3 × 8) = 24 = 99, Eq. Wt.

Med. Prop. and Action. Arsenious Acid, in doses of from one-sixtieth to one-twelfth of a grain, is alterative; and, if persevered in, tonic, increasing the appetite, and improving the quantity and quality of the secretions. In doses of gr. $\frac{1}{8}$—gr. $\frac{1}{2}$, or even somewhat larger doses, it is a powerful anti-periodic. When swallowed, or applied to a denuded surface, it is absorbed into the system, and has been detected in the blood, in the urine, and also in the liver, spleen, kidneys, stomach, and muscles. It possesses a powerful antiseptic property, arresting, in a manner almost peculiar to itself, the process of putrefaction; the stomach and alimentary canal of persons who have died from its effects have been found in a perfect state of preservation, months after interment. *Post-mortem* examinations of persons who have died from excessive doses show a great extent of intestinal inflammation, of which the stomach, small intestines, and rectum are the chief seats; in some cases, ulceration has been observed; and, more rarely, gangrene. The fauces and windpipe are occasionally involved. The morbid appearances of other parts vary in almost every case. Small doses, long continued, accumulate in the system, and occasionally produce serious, and even fatal effects. Under its prolonged use, it occasions a general sinking of the vital powers, with derangement of the digestive and nervous

* Med. Chir. Rev. July 1, 1842.

† Med. Times and Gaz. Jan. 30 1864, p. 117.

systems; a small, quick, and sometimes irregular pulse, want of sleep, and swelling of the face and extremities. These effects, however, are only observed where the remedy has been injudiciously administered for too long a period. Of 320 cases in which this remedy was given by Dr. Fowler, no immediate operation occurred, in one-third; relaxed bowels, in somewhat more than one-third; nausea, in one-third; vomiting, purging, swellings, and anorexia were comparatively rare. Mr. Hunt observes amongst the effect of medicinal doses, 1, an irritation of the conjunctiva; 2, swelling of the face: 3, a slight desquamation of the skin, observable only under a magnifying glass; 4, the portions of the skin protected from the access of light, assume a dingy brown appearance. Dr. Watson also mentions, amongst other symptoms, a peculiar silvery whiteness of the tongue. Salivation has also been observed in some instances; and, if the medicine be long continued, the urine occasionally acquires a jaundiced appearance. With respect to the tolerance of this medicine acquired by habit, Dr. T. Von Tschudi* states that, in Austria, the peasants take it in large quantities, in order to gain *embonpoint*, and to render themselves long-winded. For this purpose, they commence with about half a grain, and gradually increase the dose, until a piece of about the weight of 4 grains is taken. He mentions the case of one man of about 60 years of age, who, for more than 40 years, had followed the practice. It appears to produce no ill effect, so long as the drug is continued; but, when the indulgence is stopped, symptoms of illness are sure to appear, which have the closest resemblance to those produced from poisoning by Arsenic. The symptoms produced by excessive or poisonous doses are very various. Dr. Guy† gives the following instructive analysis of 25 cases:—*Vomiting* present in 23; in 1, not until artificially induced; in 1 or 2, it has been absent. *The vomited matters* consisted, in 3 cases, of blood; in 1, of mucus only; in 1, of water containing arsenic; in 1, of bile; and in 1, of bile and fæces. *Diarrhœa* was present in 11, excessive in 7, absent in 4. *The matters passed by stool* consisted, in 3 cases, of blood; and in 2, of matter resembling green paint. *Pain*, present in 19, absent in 1; in 2, it subsided after a short time. *The tongue and throat* constricted, hot, painful, and tense, in 9 cases. *Thirst:* Of 17 cases, it was present in 15, absent in 2; and, in 13, it is described as intense. *Countenance* flushed and swollen, in 7 cases; and pale and anxious in 5. *Eyes*, inflamed, swollen, or smarting, in 7 cases. *Skin*, hot and dry in 6 cases; covered with cold perspiration in 4; profuse perspiration, with petechiæ, in 3; universal desquamation in 1; eczematous eruption in 1. *Headache* in 9 cases, absent in 1; described as intense in 4. *Pulse*, generally very frequent, but variable, ranging from 90 to 140 or more; in 1, from 30 to 49. *Violent palpitations* in 2. *Extreme restlessness* in 5. *Extreme debility* in 10. *Coma* in 3; and *delirium* in 3. *Mind unimpaired* in 6. *Cramps of legs* in 9 cases; in 4, extending to the arms. *Convulsions* in 6. *Paralysis of the tongue and gullet* in 3. *Tetanus* in 2. *Chorea* in 1. *Hysteria* in 1. *Epilepsy* in 2 cases. *Death* took place in 3 cases, in the midst of convulsions; and, in 1, after a horrible fit of convulsive laughter, followed by a rigid spasm of the whole body.

Offic. Prep. Liquor Arsenicalis. (See Art. Liq. Arsenic.)

Dose, gr. $\frac{1}{10}$—gr. $\frac{1}{12}$.

Incompatibles, similar to Liquor Arsenicalis.

Contra-Indications. 1, all sthenic diseases, attended by strong arterial action; 2, irritable states of the stomach, and alimentary canal; 3, inflammatory pulmonary affections; 4, infancy and childhood.

395. *Rules for the Administration of Arsenic.*

1. The bowels should be well cleared out by a purgative, previous to commencing a course of Arsenic.

* Chambers' Edinburgh Journal, Dec. 20, 1851.

† Principles of Forensic Med. p. 466.

2. It should never be taken upon an empty stomach: directly after a meal is the best time for its administration.

3. It should always be commenced in small doses, and given with the greatest regularity, at stated times.

4. During its employment the eye of the patient should be examined daily; if the eyelids and conjunctiva become inflamed, the medicine should be discontinued or suspended.

5. When the urine is high-coloured and scanty, with lithate of Ammonia sediment, the tongue loaded, especially at its tip and edges, the medicine generally disagrees, and aggravates the symptoms; but it is often useful, when the visceral disorders, on which these symptoms depend, are removed.

6. When, under its use, the urine, from being pale and copious, becomes scanty, acid, and high-coloured, the medicine should be suspended.

7. If cough and other symptoms of bronchial irritation arise during the use of the remedy, it should be omitted.

8. If there is a sensation of swelling and stiffness of the palpebræ and face; heat, tenderness, and itching of the tarsi; or tenderness of the mouth,—these may be considered as indications that the remedy has been carried as far as it can with safety.

9. During a course of Arsenic, it is advisable to omit its use for a day or two, every fortnight or three weeks, and to exhibit a mild aperient, in order to prevent the remedy from accumulating in the system.

10. Any nausea or vomiting which it may occasion will be prevented by the addition of a few drops of Tinct. Opii.

(Some further rules for the Administration of Arsenic, by Mr. Hunt, will be found in the section on SKIN DISEASES.)

Externally, it should never be applied to a large ulcerated or denuded surface.

396. *Therapeutic Uses. In Intermittent and Periodic Diseases*, Arsenic holds a high place. It has maintained its character for centuries amongst Eastern nations; and its efficacy has been attested in England by Drs. Fowler, Arnold, Withering, Brown, and others. The Tasteless Ague Drop, so long celebrated in England, is a solution of Arsenic. It ranks next in value to Quinine, over which it has the advantages of being of a less disagreeable taste, and of being cheaper. Dr. Chapple,* as the result of his experience with this agent in the treatment of the Intermittents of India, remarks that when the fever is uncomplicated, the attack well marked, and the medicine administered in sufficient doses, Arsenic will generally prove as efficient an anti-periodic as Quinine. Sir Ranald Martin,† speaking of the treatment of old cases of Intermittents chiefly from tropical countries in which Quinine had been previously used and failed, often employs Arsenic, and characterises it as "indeed a noble remedy." Dr. Adamson‡ considers the powers of Arsenic to be greatly increased by the addition of the Sesquicarbonate of Ammonia (grs. v. ad Liq. Arsenicalis ♏vi., Aq. f℥j.) repeated every two or three hours, according to the frequency of the paroxysms. It may either be given in substance, or in the form of Liquor Arsenicalis; the dose of the former is from $\frac{1}{12}$ to $\frac{1}{8}$ of a grain;

* Med. Times and Gaz., March 2, 1861.

† On Trop. Dis., 2nd Ed. p. 343.

‡ Edin. Med. Journ., May, 1862.

of the latter, from ij. to viij. or x. drops, twice or thrice daily. When one preparation fails, the other is sometimes successful, and it is often productive of the best effects, when Bark or Quinine has proved ineffectual. Amongst the most modern and strongest advocates for Arsenic, in this class of diseases, is M. Boudin,* the late Physician-General of the French troops in Algeria. We give his extraordinary evidence in its favour, in his own words:—"I am assured," he says, "by successive trials, which have been repeated with similar results, by many physicians at Marseilles, that Arsenious Acid, properly prepared, preserves, in the somewhat microscopical doses of the hundredth of a grain, all its medicinal energy not only in marsh-fevers, but also in a multitude of other diseases. Further, I have obtained, from $\frac{1}{100}$ of a grain of this remedy, the entire removal of fevers contracted in Algeria and Senegal, and which had previously resisted means of various kinds, including the Sulphate of Quinine, and change of climate. * * * I have been able, in a great number of cases, and by very small doses of Arsenious Acid, to put an end, in a short time, to Quotidian, Tertian, and Quartan fevers, contracted in latitudes the most various, often complicated with chronic enlargements of the abdominal viscera, and which were incurable by the Sulphate of Quinine." Of 266 cases, of which he kept note, 181, containing fevers of all kinds which had not undergone previous treatment, were cured by Arsenic; 57, which resisted Quinine, were likewise cured by it; 13, which resisted Arsenic, were cured by Quinine; and 8 resisted both remedies. He considers it an important point to administer the remedy five or six hours before an expected paroxysm; he does not give it if the fever be complicated with bilious or inflammatory disorders. He prefers Arsenious Acid to all other preparations of the metal. *In Intermittent Mania* M. Moreau † found Arsenical preparations more successful than Quinine.

397. *Neuralgic and Spasmodic Diseases. In Tic Douloureux, and Neuralgia, arising from Dyspepsia, and also in that connected with disorders of the Uterus*, Mr Hunt‡ states that he has derived the greatest amount of benefit from Arsenic, in combination with a sedative, commencing with about miv. of Liq. Arsenicalis, and daily increasing the dose, till some decided symptom of its action is perceptible, which is commonly evinced when the dose has amounted to 10 drops. He adds, that "Arsenic operates most favourably on persons who are of lax fibre, accompanied by a languid state of the circulation, and whose secretions are rather profuse than otherwise, the urine pale and plentiful; and, more

* Treatise on Intermittent Fevers, 8vo. Paris, 1842, pp. 276—280.
† Gaz. des. Hôp. 1856, No. 113.
‡ On Tic Douloureux, 8vo. Lond. 1844, p. 174.

especially, on those whose skins are cold and moist. In persons of this description, Arsenic, far beyond other medicines, relieves the neuralgic pains, improves the general health, and gives firmness to the constitution" *In Neuralgia arising from Spinal disease, or Anæmia*, Arsenic is positively hurtful; and in that occurring in plethoric subjects, it is productive of little good.

398. *In Hemicrania*, Arsenic has often the best effect. Dr. Watson* speaks favourably of it. He believes that gutt. iv.—vj. of Liq. Arsenicalis, three or four times a day, with due attention to the state of the bowels, will be almost sure to remove Hemicrania, in nine cases out of ten.

399. *In Chronic Rheumatism*, Arsenic often proves highly serviceable. Dr. Fuller remarks that Arsenic, judiciously administered and carefully watched in its effects, is one of the most valuable remedies we possess in the chronic forms of this disease. Dr. Christison also bears witness to its efficacy; and Dr. Begbie, who entertains a high opinion of it, relates several cases illustrative of the benefit to be derived from it.† Dr. Begbie regards Arsenic as a special alterative in the rheumatic diathesis—a true antirheumatic. M. Gueneau de Mussy‡ speaks of the great benefit derivable from Arsenical baths in *Rheumatic Gout*. To each bath he adds Carb. of Soda ʒiij.ss. and Arseniate of Soda gr. xv. gradually increased to gr. xxx. These, however, failed in the hands of M. Trousseau.§ In *Rheumatic Gout*, especially when characterised by extreme inactivity of the skin, which is cold, harsh and dry, Arsenic is very favourably spoken of by Dr. Fuller.‖ If the urine be turbid, he gives Liq. Arsenicalis ♏viij.—xv. with Liq. Potass. or Potass. Acet.; if the urine be clear and of a low sp. gr., he gives Liq. Arsen. Chlorid. ♏x.—xx. either alone or with bark; and if acids be indicated, with Hydrochloric Acid.

400. *In Toothache*, Arsenic has been employed by Mr. Stokes¶ and others, with decided success. He recommends $\frac{1}{20}$ of a grain of Arsenious Acid, to be combined with a small portion of Morphia and Creosote. This is applied on a small piece of cotton wool to the sensitive part of the tooth, and retained *in situ* by a bit of soft wax. Mr. Stokes adds, that he knows of no remedy of equal efficacy and certainty, and that it may be regarded almost in the light of a specific. A similar application (having an addition of Pulv. Gallæ gr. ½) is also strongly recommended by Dr. Castles,** of New York.

* Lectures, vol. i. p. 718.
† Edin. Med. Journal, May 1858, p. 961.
‡ Gaz. des Hôpitaux, Aug., 1861.
§ Journ. de Méd. Prat., Nov. 1861.
‖ Brit. Med. Journ., March 28, 1857.
¶ Med. Times, April 14, 1849.
** Lancet, March 25, 1843.

401. *In Angina Pectoris*, it has been employed with varying success. It often fails, but many examples of its successful employment are on record. Amongst others, Mr. Alexander* relates a very severe case, which completely yielded to the use of Liq. Arsenicalis, when other remedies had failed.

402. *In Asthma*, Fowler's Solution (gutt. ij. night and morning, gradually increased to gutt. vj.) is advocated by Dr. Duclos.† It is inadmissible in Asthma connected with organic disease of the lungs and heart.

403. *In Hooping Cough*, Arsenic was formerly held in high esteem. Mr. Simmons‡ relates several cases successfully treated with it. He speaks highly of its efficacy and safety; but it is regarded, at the present day, as too powerful a remedy for young children.

404. *In Chorea*, Arsenic appears to exercise a powerful influence. Dr. Gregory§ relates several cases illustrative of its efficacy, when given in the form of Liq. Arsenicalis, in doses of gutt. iij., gradually increased to gutt. x. thrice daily. Dr. Pereira‖ states that he has seen great advantage attend its use, in fact that he knows of no remedy for this disease equal to Arsenic, which, in a large proportion of cases, acts almost as a specific; and Dr. Begbie, of Edinburgh, states that, in an experience of thirty years, he has never known Arsenic (given as above) to fail. The trials of it by Dr. Stone¶ tend to confirm the high opinion expressed by others. *In Epilepsy* it has been successfully employed by Pearson, Prichard, Thompson, and others.

405. *Diseases of the Skin.* For a long period Arsenic has been known to exercise a beneficial influence in cutaneous affections. Bateman** employed it extensively, and speaks highly of its efficacy; more recently it has been strongly advocated by Mr. Hunt,†† who states that for thirty years he has constantly employed it in the treatment of *Eczema*, *Lepra*, *Psoriasis*, *Acne Punctata*, *Acne Rosacea*, and *Impetigo*, and that it has not failed in any one of the above forms in a single instance when fairly and fully tried. He adds, that it is to the method, not to the remedy (for that is old), that he chiefly calls attention. He has embodied the results of his long experience in the following rules, which are well worthy of attention.

1. Arsenic should never be commenced while signs of active cutaneous inflammation are present.

2. It should be well mixed with the food or drink, and never taken on an empty stomach.

* Med. Commentaries, vol. xv. p. 373.
† Bull. Gén. de Thérap. 1861.
‡ Annals of Medicine, 1797.
§ Medico-Chir. Trans. vol. xi.
‖ Mat. Med. vol. i. p. 714.
¶ Med. Times and Gaz., Sep. 7, 1859.
** Synopsis of Dis. of the Skin, p. 33.
†† Lancet, Jan. 17, 1846.

3. It should be given in three or four doses daily, and with the greatest regularity.

4. Five minims of Liq. Arsenicalis is generally a sufficient dose to commence with, *i.e.* ɱxv. daily. As soon as the conjunctiva becomes affected, this dose may be reduced; but it is desirable to reduce it gradually.

5. During the administration of the minimum dose, should Conjunctivitis supervene, the dose should be further reduced; if necessary, it may be wholly discontinued for a very short period.

6. The minimum dose (*i.e.* a dose which, if given continuously, affects the conjunctiva in the slightest possible degree) should be persevered in with unremitting regularity for as many months after the disappearance of the disease as it had previously existed years. This is necessary to prevent a relapse.

7. Should the disease appear to advance instead of recede during any period of the minimum dose, the course should not be intermitted on this account. Leeches or purgatives in the sthenic, and Quinine, with generous living, in the asthenic cases, will generally be sufficient.

In order to test more strictly the value of the remedy, Mr. Hunt occasionally intermitted the course, and with the most uniform result, viz. a relapse of the disease. For the same purpose, he abstained from all external applications (leeches excepted), and states that he never found them necessary to the cure.

Dr. T. M'Call Anderson,* in advocating the use of Arsenic in *Eczema*, recommends that it be given in doses of ɱv. of Liq. Arsenic. thrice daily, and at the end of a week or so the dose is to be increased by a drop every second or third day. He does not think it necessary to stop if irritation of the eyes or slight puffiness of the face are induced. If these symptoms, however, become aggravated, and are accompanied by pains in the stomach and head, anorexia, and nausea, the dose should be diminished or omitted for a few days. But he recommends that its administration be not stopped altogether because these physiological effects are produced. In the case of infants at the breast, he prescribes Arsenic for the mother. Dr. Begbie† also thinks that, in order to procure the virtues of arsenic as an alterative, it is necessary to push it to the full development of the phenomena which indicate its peculiar action on the system.

406. *In Relapsing Pemphigus*, Arsenic appears to possess almost specific virtues. Mr. Hutchinson‡ states that in his experience Arsenic almost invariably cures the disease at once, but that

* Med. Times and Gaz., June 27, 1863, p. 661.

† Contributions to Practical Medicine, p. 270.

‡ Med. Times and Gaz., Jan. 2, 1864, p. 10.

relapses may be expected to take place once or twice in the twelvemonth. If, however, Arsenic be again resorted to, the patient's health gradually improves, and each successive attack becomes milder.

407. *In Lupus Exedens*, Mr. Hunt* also made extensive trials with Arsenic, given as above. He found it highly successful. *In Lupus Non-Exedens* its value is trifling.

408. *In Chronic Lichen Agrius*, Dr. Houghton† regards Arsenic, in the form of Liquor Arsenicalis, as the best internal medicine. He advises it in doses of gutt. iij.—viij. daily.

409. *In Sycosis*, Dr. Wright‡ strongly recommends the following mixture, having experienced much benefit from it:—℞ Infus. Gentian. f℥viij., Liq. Arsenicalis, Liq. Potassæ āā f℥j., M. sumat coch. amp. ij. ter in die.

410. *In Urticaria or Nettlerash*, when it assumes a periodic character, Dr. Jonathan Green§ speaks highly of the value of Arsenic. It is best given in combination with Liq. Potassæ.

411. *In Furunculus*, Arsenic has been employed by Dr. Schweich,‖ who relates some cases which yielded to Liq. Arsenicalis, in doses of gutt. iv., gradually increased to gutt. vj., twice or thrice daily.

412. *In Onychia Maligna*, much benefit arises from the application of diluted Liquor Arsenicalis (fl. drs. ij.—Aq. fl. oz. ij.). Mr. Luke¶ regards an arsenical ointment (Arsenious Acid gr. ij., Lard ℥j.) as almost a specific.

413. *In Elephantiasis Græcorum*, Arsenic has for centuries been held in high esteem in India. M. Benet,** formerly physician to the King of Lahore, states that he has in numerous instances seen the following formula prove very efficacious:—105 grains of Arsenious Acid are triturated with five or six times the quantity of Black Pepper. This is made into a mass, and a pill the size of a "tare" is taken night and morning. This is the celebrated "Tanjore Pill;" and, by the native practitioners of India, is regarded as an almost certain cure.

414. *In Frambæsia or Yaws*, Arsenic, steadily persevered in, is productive of decided benefit. I have seen great amelioration follow the prolonged use of Liq. Arsenicalis, in doses of gutt. iv.—v., gradually increased to gutt. viij. thrice daily. Unguentum Hydrarg. Nit. was employed as a local application, and strict attention paid to the bowels. Many cases, however, resist this as well as all other treatment.

415. *In Chloasma*, it is favourably spoken of by Mr. E. Wilson (op. cit. p. 357).

* Medical Times, Feb. 1, 1851.
† Cyc. Pract. Med. vol. iii. p. 44.
‡ Clin. Lect. Med. Times, vol. xvi. 1847.
§ On Diseases of the Skin.
‖ Brit. and For. Med. Rev. 1848.
¶ Pereira's Mat. Med. vol. i. p. 716.
** Gaz. des Hôpitaux, Dec. 14, 1842.

416. *In Cancer*, Arsenic was formerly regarded almost as a specific. Justamond, Stark, Rush, Fisher, Michaelis, Salmade, and others, speak of its efficacy in the highest terms. More recently it has been advocated by Mr. Hill, who considers that in the majority of cases it will retard the progress of true scirrhous tumour, and often prevent it becoming a cancer. Dr. Copland* believes that when this medicine is cautiously employed, both internally and externally, in conjunction with Narcotics and Alkalies, it exercises a beneficial effect. It is rarely used in the present day, the majority of medical men regarding it not only as useless, but as injurious. Dupuytren's Powder, which obtained much celebrity as a local application to this and other malignant ulcerations, was a composition of 4 parts of Arsenious Acid and 96 of Calomel. This, as well as the Arsenical Paste, formerly also in high repute as a local application, is justly condemned by modern practitioners. *In Cancerous and Malignant Ulcers of the Tongue*, the internal use of Arsenic is stated to prove highly efficacious.†

417. *As a remedy for the Bites of venomous Snakes*, the Tanjore Pills, a composition of Arsenic and Black Pepper (described above), have long been highly esteemed by the native practitioners of India. In 1816 this remedy was given a fair trial by Mr. Ireland,‡ of the 60th Regiment, in the bites of a very poisonous snake in the West Indies. Several persons had died of the bites of the same snake previous to being seen by Mr. Ireland. In the first case attended by him, he administered a draught composed of Liq. Arsenicalis f℥ij., T. Opii ℏx., Aq. Menth. Pip. f℥iss., M. This was added to f℥ss. of lime-juice, and, as it produced a slight effervescence, it was given in that state. This remained on the stomach, and was repeated every half-hour for four successive hours. In the meantime the parts were fomented, purgative glysters administered, and the following liniment applied to the parts:—℞ Ol. Terebinth., Liq. Ammoniæ Ol. Olivæ ää f℥ss., M. This case, as well as four others treated in precisely the same manner, perfectly recovered.

418. *Uterine Affections. In carcinoma of the Uterus, in Irritable Uterus*, and in several cases of *Menorrhagia*, Arsenic has been used with decided benefit by Mr. Hunt,§ of Dartmouth. Its value in atonic Menorrhagia is confirmed by Dr. Locock,‖ who states that he has employed it with great success in this and many other uterine affections. He considers that it acts specifically. In one case of Cancer of the Uterus, in which no relief was obtained from 24 grains of Morphia, great ease and benefit

* Dict. of Pract. Med., art. Cancer, vol. i. p. 237.

† Mr. Lane, Med. Chir. Trans. vol. viii. p. 201.

‡ Med. Chir. Trans. vol. ii. p. 393.

§ Medico-Chir. Trans. vol. xxi. Art. 5.

‖ Lancet, April 14, 1838.

accrued from small doses of Liq. Arsenicalis. Dr. Locock, who quotes this case, thinks highly of the value of Arsenic in this class of diseases. Mr. Hunt advises it, in doses of gr. $\frac{1}{20}$, thrice daily, immediately after meals. *In Menorrhagia, Leucorrhœa,* and *Uterine Hæmorrhage in threatened Abortion and after Delivery,* Dr. A. Burns* speaks of Arsenic as a most reliable remedy. He prescribes, in Hæmorrhage, at first ♏x.—xx. of Fowler's Solution, according to the severity of the case, and repeats ♏x. every fifteen or twenty minutes, till the discharge ceases. In Leucorrhœa he gives ♏v. thrice daily till a cure is effected.

419. *In Phthisis,* arsenious fumigation is recommended by Trousseau.† He directs a sheet of white paper to be dipped into a solution, composed of 1 part of Arseniate of Soda and 30 of water. The paper is then made into little cigars, and the patient is directed to smoke one or two daily, in such a manner that the fumes may pass into the lungs. This is accomplished by inspiring at the moment the fumes enter the mouth. At first, it causes slight irritation; but after a short time, the cough and expectoration diminish. Of eight cases in which it was tried, four were decidedly relieved, and in four it failed to afford relief. Arsenious fumigations in Phthisis were advised by Dioscorides. Dr. Leared‡ tried Arsenic conjoined with Cod Liver Oil and Sedatives in nine cases of *Phthisis,* and from these he draws the conclusion that it would prove useful in Phthisis by virtue of its action on the respiratory system as well as by its tonic properties, but that it is not easily borne by the digestive system, even when combined with sedatives.

420. *In Chronic Bronchitis,* attended with copious expectoration and much emaciation, Arsenic has been employed with success by M. Garin.§ He advises it in doses of $\frac{1}{20}$ of a grain.

421. *In Plethora,* with determination of blood to the head, Arsenic is reported to have been used with great advantage.‖ *In Apoplectic Congestions,* the use of Arsenic is advocated by Dr. Lamare Piquot,¶ who considers that it acts by reducing in a remarkable manner the excess of the red globules of the blood, which in these cases he supposes to exist in a morbid and dangerous degree. Its use is confined to strong plethoric subjects, and is not applicable to weakly old subjects when there is a disposition to apoplectic congestion. He prescribes Arsenious Acid in doses of gr. $\frac{1}{15}$—gr. $\frac{1}{6}$, in a ʒiv. mixture daily, one half at each meal. In one case of this description, I witnessed more relief from the

* Amer. Journ. of Med. Sci., Oct. 1859.

† Brit. and For. Med. Rev., Feb. 1841.

‡ Med. Times and Gaz., Jan. 28, 1863.

§ Rev. Med. Chir. 1848.

‖ Edin. Med. and Surg. Journ. April, 1839.

¶ Gaz. Hebdom. de Méd., Jan. 20, 1860.

use of Liq. Arsenicalis, in combination with Liquor Potassæ, than from the local abstraction of blood, blisters, and setons.

422. *In Hay Fever*, Dr. Mackenzie* states that he has seen Arsenic most serviceable, particularly when it partakes more of a catarrhal than an asthmatic character. Where the disease has been slight, or the medicine has been given with a view of improving the tone of the mucous membrane, rather than of correcting morbid action, doses of miij. of Liq. Arsenicalis, or even less, are preferable; whilst, on the other hand, if the irritation has been excessive, or resists these, larger doses may be given, and their action modified or assisted, in different cases, by remedies of a kindred character.

423. *In some forms of ordinary Catarrh*, Dr. Mackenzie† found Arsenic productive of the best effects, but more especially in those cases in which the affection was of a local character, and there was an absence of inflammatory action, as well as of febrile disturbance. These states contra-indicate its use.

424. *In Catarrhal Ophthalmia*, and more especially in those forms which are of a passive, subacute, or chronic character, or where the irritability of the conjunctiva is excessive, Arsenic has proved very beneficial in the hands of Dr. Mackenzie. In Strumous Ophthalmia, Dr. Thorp‡ states that Arsenic is a most valuable agent in inveterate cases, more especially when complicated with chronic eruptions of the scalp or cutaneous surface generally.

ARSENIATE OF IRON. (See Ferri Arsenias.)

ARSENIATE OF SODA. (See Sodæ Arsenias.)

425. ARSENICI IODIDUM. Iodide of Arsenic. AsI_3. Properly Teriodide of Arsenic, called also the Ioduret or Hydriodate of Arsenic. Is a compound of 1 Eq. Arsenic = 75 + 3 Eq. Iodine = 378 = 453, Eq. Wt.

Med. Prop. and Action. Alterative and tonic. When given internally, it is absorbed into the system, and is eliminated by the urine, saliva, and perspiration. It is a powerful remedy, and requires to be given with great caution. Externally, it is used in the form of ointment (gr. ij.—iij., Lard oz. j.). It should never be applied to a large ulcerated surface.

Dose, gr. $\frac{1}{10}$, gradually increased to gr. $\frac{1}{3}$.

426. *Therapeutic Uses. In Cancer*, Dr. Walshe§ regards the Iodide of Arsenic as one of the most valuable remedies we possess; but it must not be looked upon as a curative agent. After extensive employment of it, Dr. Walshe has drawn the following conclusions on the subject:—

* Lond. Journ. of Med., July 1851.
† Op. cit.
‡ Dub. Quart. Journ. of Medicine, Aug. 1857.
§ On the Nature and Treatment of Cancer, p. 201-2.

1. Given in doses of from $\frac{1}{16}$ to $\frac{1}{12}$ of a grain, twice a day, two hours after eating, the Iodide of Arsenic is well borne, and may be continued without risk for several months.

2. The system, generally, soon gives evidence of its action: unusual palpitation, with dryness of the fauces and of the alimentary canal, occur; sometimes slight headache is complained of, but this is rare; and I have known the most violent *periodic headache*, which had affected a lady for years, disappear while she was under the influence of this salt.

3. The pain of the tumour decreases in violence.

4. The size of the breast generally diminishes; and, if the tumour itself does not actually lessen in bulk, I have at least found that its enlargement, previously more or less active and apparent, becomes, as far as can be determined, suspended.

5. The general health improves.

427. *In Lupus, or Noli me Tangere*, the Iodide, given internally, in the doses and in the manner directed by Dr. Walshe in Cancer, often occasions temporary and, in some cases, permanent amelioration.

428. *In Lepra, Psoriasis, and Impetigo*, the Iodide, in doses of $\frac{1}{10}$ of a grain, has been employed by Dr. A. T. Thompson with great success. Dr. Neligan,* who has also used it with benefit, advises the following formula:—℞ Liq. Arsenicalis f℥ij., Potass. Iodid. ℥ss., Syr. f℥ij., Aq. f℥ss., M. Dose, a tea or dessert spoonful, thrice daily, in water. Or with the addition of Iodine:—℞ Liq. Arsenicalis ♏lxxx., Potass. Iod. gr. xvj., Iodi gr. iv., Syr. Flor. Aur. f℥ij. Dose:—A teaspoonful in a wine glass full of water thrice daily. This formula has been found by Dr. T. M'Call Anderson of use in some cases of *Eczema*.

429. *In Tinea Capitis*, Dr. Neligan† regards the Iodide as the best constitutional remedy. He advises it in doses of $\frac{1}{10}$ of a grain, gradually increased to $\frac{1}{4}$ for an adult, $\frac{1}{12}$ for a child of six years old, and from $\frac{1}{18}$ to $\frac{1}{24}$ for younger children. It may be given to adults in the form of pill, and to children in a little sugar. The scalp should be washed with an alkaline lotion (see Potassæ Carb. and Sodæ Carb.), and an ointment of the Iodide of Lead will complete the cure. The Iodide of Arsenic is, generally, too powerful a medicine for young children.

430. Liquor Arsenicalis. Liquor Potassæ Arsenitis (Ph. Lond.). Fowler's Solution. Tasteless Ague Drop. A mixed Solution of Arsenite and Carbonate of Potash.

Med. Prop. and Action. Are nearly similar to those of Arsenious Acid. It occasionally, however, succeeds when the acid fails, and *vice versâ*. It is the form of Arsenic best adapted for children, when it is considered advisable to

* Dublin Quart. Journ. Nov. 1849. † On Diseases of the Scalp, 1848.

administer so powerful a medicine; fl. oz. j. contains gr. iv. of Arsenious Acid, and fl. drm. j. gr. ½.

Dose, ℥ij.—v.—viij. twice or thrice daily.

Incompatibles. Acids; Acidulous Salts; Sulphuretted Hydrogen and its compounds; the Sulphates of Magnesia, Iron, and Copper; the Chlorides of Calcium, Iron, and Barium; Nitrate of Silver; Alum; and Decoction of Cinchona.

Therapeutic Uses and Rules for administration. See ACIDUM ARSENIOSUM.

431. LIQUOR ARSENICI CHLORIDI, Ph.L. A Solution of Arsenious Acid in Hydrochloric Acid. Dr. Valangin's Solutio Solventis Mineralis. Philips's Solution of Chloride of Arsenic.

Med. Prop. and Action. This preparation has been erroneously supposed to be a solution of Chloride of Arsenic, whereas it really contains Arsenious Acid. It has been supposed to produce less gastric irritation than Liquor Arsenicalis. But this is probably owing to the smaller quantity of Arsenic it contains; fl. oz. j. containing only gr. iss. of Arsenious Acid. Drs. Pereira* and Garrod† have been unable to observe any superiority in its action over that of the Solution of Arsenite of Potash. It is omitted in the British Pharmacopœia.

Dose, ℥iij.—℥x. thrice daily.

Therapeutic Uses. Similar to those of Liquor Arsenicalis.

432. LIQUOR ARSENICI ET HYDRARGYRI IODIDI. Solution of the Iodide of Arsenic and of Mercury. Liquor Arsenici et Hydrargyri Hydriodatis (Ph. D.). Solution of the Iodo-Arsenite of Mercury. Commonly known as Donovan's Solution. So called after its inventor, Mr. Donovan, of Dublin. A combination of Iodine, Arsenic, and Mercury, the Iodine being combined with the metals in such proportion as to form the Teriodide of Arsenic (AsI_3) and the Periodide of Mercury (HgI). Mr. Donovan, however, considers that the Iodides are converted into Hydriodates. Each fl. drm. j. of the solution contains a quantity of Teriodide of Arsenic, equivalent to gr. $\frac{1}{8}$ of Arsenious Acid, and of Iodide of Mercury, equivalent to gr. $\frac{1}{4}$ of the Peroxide of Mercury, and gr. $\frac{3}{4}$ of Iodine, converted into Hydriodic Acid.

Med. Prop. and Action. Alterative, in doses of fl. drm. ss. thrice daily. Mr. E. Wilson‡ regards this dose as too large, in many cases giving rise to headache, nausea, and occasionally salivation; but these symptoms disappear when the medicine is discontinued. It is a very valuable preparation.

Dose, ℥v.—℥xxx.

433. *Therapeutic Uses. In obstinate Cutaneous Diseases*, particularly in *Psoriasis*, *Lepra*, *Pityriasis*, *Ephelis*, *Lupus*, and *Impetigo*, the solution has been found highly successful by Mr. Donovan, Drs. Osbrey,§ Byron,‖ Graves,¶ and others. Dr.

* Mat. Med. vol. i. p. 720.

† Med. Times and Gaz., March 12, 1864.

‡ On Diseases of the Skin, p. 281.

§ Dublin Journ., vol. xxi. p. 401, and vol. xviii. p. 97.

‖ Ibid. vol. xxii. p. 57.

¶ Ibid. Sept. 1840.

Osbrey advises the following formula:—℞ Liq. Ars. et Hyd. Iod. gutt. lxxx., Aq. Dest. f℥viij., Syr. Zingib. f℥ss., M. Dose, f℥j. every third hour. *In Sycosis* it has been found highly useful by Mr. E. Wilson.*

In Urticaria or Nettlerash, Dr. Osbrey found the solution in doses of gutt. vj. thrice daily, productive of signal benefit.

434. ARTEMESIA ABSINTHIUM AND ARTEMESIA VULGARIS. Wormwood. *Nat. Ord.* Compositæ. *Linn. Syst.* Syngenesia Superflua. *Hab.* England and Northern Europe.

Med. Prop. and Actions. The flowering tops and the whole plant are aromatic, tonic, and anthelmintic. When taken in large doses, or for a long period, they communicate a very bitter taste to the secretions. So disagreeable is the plant to some persons, that the smell of it occasions violent headache and nervous derangement. The plant yields a green Volatile Oil having the odour of Wormwood (*Ol. Absinthii*); a bitter principle (*Absinthine*); and an acid (*Absinthic Acid*). Salt of Wormwood (Sal Absinthii) is impure Carbonate of Potash obtained by incinerating Wormwood. Wormwood is best given in the form of Extract, in doses of gr. v.—gr. xx. Externally applied, it is said to be discutient and antiseptic.

Dose: Of powdered root, gr. xv.—gr. lx. Of infusion (prepared by macerating oz. j. of dried herb in Oj. of boiling water), fl. oz. j.—fl. oz. ij.

435. *Therapeutic Uses. In Dyspepsia*, Wormwood, as a pure bitter tonic, proves serviceable. It is best given in infusion, of which fl. oz. j.—fl. oz. iss. may be taken three or four times daily. It has no advantage over less disagreeable medicines of the same class.

436. *In Epilepsy*, the freshly-powdered root (gr. l.—lxx.), given in hot beer an hour before an expected paroxysm, is stated to be very efficacious in preventing its occurrence. It produces copious diaphoresis. In 10 cases in which it was used by Hufeland,† 3 recovered, 3 were relieved, and 4 received no benefit. Several high German authorities bear witness to its efficacy, and Dr. Elliotson‡ details a case evidently benefited by its use. It has also been used with advantage in *Chorea*. Wutzer employed it successfully in the *Convulsive Diseases of Childhood*, and it was recommended by Biermann in *Eclampsia Infantum*, occuring during dentition. He commences, for children, with g. ½, and gradually increases the dose (Dunglison).§

437. *In Intermittents*, it is considered by M. Muys equal to Cinchona. He speaks highly of its efficacy, and advises it in doses of gr xx.—ʒij, immediately on the approach of pyrexia.

438. *Against Worms*, it has been successfully employed, but it has fallen into disuse, not so much from its inefficiency, as from its intensely bitter and disagreeable taste. Dose, as a ver-

* Op. cit. p. 418.

† Hufeland's Journ., 1842. Also *Burdach*, Archiv. Gen. de Méd. t.vii. p.588.

‡ Lancet, July 9, 1836.

§ New Remedies, p. 123.

mifuge gr. lx.—gr. cxx. in Aq. fl. oz. v. It should be followed by a brisk cathartic. M. Cazin* speaks very favourably of it, and considers that it not only expels worms, but, if continued, prevents their reproduction.

439. ARTEMESIA CONTRA. Semen Contra of the Levant and Aleppo.

ARTEMESIA JUDAICA. Indian Semen Contra. *Hab.* Arabia, China, &c.

ARTEMESIA SANTONICA. Wormseed or Semen Santonicum. *Hab.* Persia. Imported from Russia.

Med. Prop. and Action. The unexpanded flower-heads of these three species of Artemesia are valuable anthelmintics, and are much esteemed in the East. In the round and long worm (*lumbricus teres*) they are especially useful. Their action is heating and stimulant. The dose gr. lx. or more, finely powdered, should be given in electuary or diffused through milk, and taken on an empty stomach. In infusion or decoction the bitterness is disgusting. Cathartics should follow or accompany their use. Their vermifuge properties depend upon a volatile oil and a peculiar principle, *Santonin* (Santoninum).

Offic. Prep. Santoninum. (See art. Santoninum.)

Dose of Wormseed, gr. lx.—gr. cxx.

440. ARTEMESIA MOXA. A. Chinensis. A native of China, chiefly remarkable as the plant used in the preparation of the Moxa in the East.

The Moxa was formerly much esteemed *in Rheumatic Affections, Paralysis, and Diseases of the Joints*, but it has fallen into comparative disuse. The actual cautery is a more certain and efficacious application in those cases in which it is necessary to have recourse to such powerful measures. (See MOXA, part ii.)

441. ASARUM EUROPÆUM. Common Asarabacca. *Nat. Ord.* Aristolochiæ. *Linn. Syst.* Dodecandria Monogynia. *Hab.* England.

Med. Prop. and Action. The dried leaves and the dried root were formerly much used as emetics, but they are so violent in their operation that they are deservedly discarded. They are also cathartic and diuretic. The powder of the leaves is occasionally used as an errhine. It excites a copious discharge of mucus from the nose, which has been observed to continue for two or three days. Its action is that of a counter-irritant. Active principle, *Asarine.*

Dose: As an emetic, Dried leaves, gr. xx.—xxx.; root, gr. x.—gr. xx. As an errhine, gr. ij.—gr. v. every night.

442. *Therapeutic Uses.* As an errhine (the leaves should be very finely powdered and well snuffed up the nostrils), Asarabacca has been employed in—1, *Severe Headaches;* 2, *Chronic Ophthalmia;* 3, *Chronic Affections of the Brain;* 4, *Paralysis of the Mouth and Tongue;* 5, *Toothache.* (See ERRHINES, part ii.)

* Dublin Quarterly Journ. May, 1850.

443. Assafœtida. The Gum-Resin obtained by incision from the living root of Narthex (Ferula, *Linn.*) Assafœtida (*Falconer*). *Nat. Ord.* Umbelliferæ. *Linn. Syst.* Pentandria Trigynia. *Source*, Persia, Affghanistan, and the Upper Provinces of India, whence it is conveyed to Bombay.

Med. Prop. and Action. Stimulant, anti-spasmodic, expectorant, and anthelmintic. It is the most active and powerful of all the fetid gums. When taken internally, it is absorbed into the system, and communicates its odour to the urine, milk, and perspiration. It may also be detected in the breath. The Arabians place it among their aphrodisiacs, and throughout the East it is considered to be of so stimulating a nature, that if administered to a pregnant woman, it will cause the death of the fœtus. Recent observations in Europe partially support this opinion. Lombard, however, regards it as a sedative; he found it diminish and render more regular the movements of the heart, and produce a state of tranquillity not easily excited. It is best administered in the form of Tincture. It occasionally enters into the composition of enemas.

Offic. Prep. 1. Enema Assafœtidæ (Tr. of Assafœtida fl. drms. vj.; Mucilage of Starch fl. oz. vj).

2. Pilula Aloes et Assafœtidæ (Powdered Socotrine Aloes oz. j.; Assafœtida oz. j.; Hard Soap oz. j.; Confect. of Roses oz. j.). Dose, gr. v.—gr. x. or gr. xx.

3. Pilula Assafœtidæ comp. (Assafœtida oz. ij.; Galbanum oz. ij.; Myrrh oz. ij.; Treacle oz. j.). Dose, gr. v —gr. x.

4. Tinctura Assafœtidæ (Assafœtida oz. iiss.; Rect. Sp. Oj.; prepared by maceration). Dose, fl drm. ss.—fl. drms. ij.

Dose of Assafœtida, gr. v —xx. in pills or emulsion.

It is contra-indicated in all inflammatory states of the system.

444. *Therapeutic Uses. In Spasmodic Asthma*, Assafœtida is sometimes strikingly beneficial. It is best given in combination with other anti-spasmodics and with narcotics, thus:—℞ T. Assafœt. fl. drm. ss., T. Opii ɱxx., Spt. Æther Sulph. Co. fl. drm. ss., Mist. Camph. fl. oz. iss., M. ft. haust. *In Angina Pectoris*, the same formula is also, occasionally, of great use. Should the symptoms be very urgent, a small abstraction of blood (fl. oz. vj. —fl. oz. viij.) will be beneficial.

445. *In the Chronic Stage of Hooping Cough*, M. Rieken* found Assafœtida more useful than any other remedy. He advises its administration in glysters. Half a grain of the gum incorporated with the yolk of an egg, and mixed in fl. oz. vj.—fl. oz. viij. of water, is sufficient for ten or twelve glysters, for children under one year of age; four or six for those under three years; and two or three for elder ones. Two glysters are administered daily. Olive oil may be added, if they cause tenesmus. Its internal use was advocated by Millar,† in 1769, but Hufeland reported unfavourably of its efficacy. *In the advanced stages of Pneumonia and Bronchitis in Children*, Prof. G. B. Wood‡

* Ed. Med. and Surg. Journ., April 1843.

† Obs. on Asthma and Hooping Cough, 8vo, Lond. 1769.

‡ Therap. i. p. 612.

regards it as an admirable remedy. His testimony in its favour is very strong; he considers that he has seen many lives saved by its judicious use; it is particularly useful in relieving nervous exhaustion, when freely used and repeated every one or two hours. *In Laryngismus Stridulus* it is said also to have proved effectual.

446. *In Flatulence and Flatulent Colic*, especially in that occurring in hysterical women, an enema containing fl. drs. ij.—fl. drs. iij. of T. Assafœtida, will often afford immediate relief.

447. *In Hysteria*, Assafœtida is one of the most powerful medicines which we possess. Its operation is generally speedy, uniform, and permanent. Its use is not confined to one form more than another, although its effects are more readily evidenced in persons of weak and debilitated constitutions than in the stout and robust. The following is a popular form for its administration: — ℞ T. Assafœtid., T. Castorei, T. Valerian Am. āā fl. drs. ij., Mist. Camph. fl. oz. vij., M. Dose, one or two tablespoonfuls every hour. During a paroxysm, Dr. Conolly* advises an enema, containing ʒj.—ʒij. of the T. of Assafœtida. Dr. Graves considers that it is generally given in too small doses.

448. *In Excessive Palpitations of the Heart*, Dr. Lombard,† of Geneva, states that Assafœtida, applied externally in the form of Emp. Galban. Co. (L. Ph.) over the region of the heart, seldom fails to quiet palpitations. Internally exhibited it produced the same effect, which was of a more permanent character than that induced by other remedies.

449. *In Dyspepsia attended with Hypochondriasis, and other Nervous Affections*, Assafœtida, in combination with bitter tonics and mild aperients, may often be given with advantage. In these cases, it is best given in the form of pill.

450. *In Nervous Affections, Chorea, Epilepsy, &c., connected with Uterine derangement*, it is also a remedy of great value. When it is desired to produce a speedy and decided effect, the tincture should be given; but its effects are more permanent if administered in substance.

451. *In the Convulsions of childhood during dentition*, an enema, containing a small portion of Assafœtida, appears to mitigate the severity and the duration of the convulsion.

452. *Against Lumbrici or Round Worms*, Dr. Cazin‡ regards Assafœtida as a valuable vermifuge, particularly when the presence of intestinal worms gives rise to sympathetic nervous affections. It thus fulfils a twofold indication. He mentions two cases of *Chorea* and one of *Epilepsy*, in which Assafœtida not only revealed the true cause (*Lumbrici*), but effected a cure. He

* Cyc. Pract. Med. art. Hysteria.
† Brit. and For. Med. Rev., vol. i. p. 265.
‡ Dublin Quarterly Journal, May 1850.

advises it in doses of gr. iv.—gr. xxx., in powder, in combination with Calomel; or, in anæmic subjects, with the black oxide of Iron. *Against Guinea-Worm*, it is regarded, in India, as a specific.*

453. *In Delirium*, when the vital powers are greatly depressed, anti-spasmodics and stimulants are indicated. Of these, Assa-fœtida is spoken of in high terms by Wanters† and others. It should be combined with Camphor, Musk, &c.

454. ATHEROSPERMUM MOSCHATUM. Australian Sassafras. *Nat. Ord.* Atherospermaceæ. *Hab.* Australia, Victoria, Tasmania.

Med. Prop. and Action. The bark of this small tree, which has a fragrant odour and a pleasantly bitter camphoraceous taste, originally obtained repute amongst the colonists as a substitute for tea, and also in the form of a concentrated infusion as a diaphoretic and diuretic. Further attention to it has been called by Dr. A. Greeves,‡ of Victoria, from whose account it would appear to be possessed of valuable medicinal properties. After remarking that an infusion of the bark has long been in use amongst the early settlers as a sort of diet-drink for *Rheumatism* and *Secondary* (*Syphilitic*) *Affections*, he states that his attention was attracted to it several years since by the relief he personally experienced, whilst suffering from a severe attack of chronic Bronchitis, from chewing a piece of the bark, and swallowing the saliva. A decoction, he adds, was immediately prepared, duly taken every third hour, and in less than twenty hours the pulse fell from 120 to 80; whilst the expectoration, from being difficult and excessive, became easy and moderate. In short, in a few days, without any other treatment than this remedy, an attack of many weeks' duration terminated. Drs. Howitt and Wilmott are stated to have instituted some trials with it in similar cases, and with uniformly satisfactory results. Indeed, it appears to have come into such general use at Victoria that it is kept in the chemists' shops for sale like other medicines.

Mr. Bosisto, of Melbourne, has succeeded in separating (1) an essential oil, and (2) a bitter principle in the form of an extract. The oil, which is abundant, is regarded as the sedative principle, and is stated to have been successfully employed by Dr. Hudson in *heart disease* (?) Caution is evidently required in its use: a single drop is a full dose. An alkaloid (*Atherospermine*) has been discovered in it by Dr. Wittstein, of Munich.

Dr. Greeves (op. cit.), on whose authority the above statements are given, considers that it must be admitted that a sedative tonic, which acts freely on the kidneys and the skin, and which facilitates expectoration whilst reducing the secretion, is likely to prove a valuable addition to the Materia Medica. The remedy certainly seems worthy of further trials.

Dose. The dose of the decoction (oz. j. ad Aq. Oj. boiled for fifteen minutes) is fl. oz. j.—fl. oz. ij. every three or four hours. It is likewise used in the form of tincture.

455. ATROPA BELLADONNA. Deadly Nightshade. Deadly Dwale. *Nat. Ord.* Solanaceæ. *Linn. Syst.* Pentandria Monogynia. *Hab.* England, Northern Europe. Flowers in June and July.

Med. Prop. and Action. The leaves (*off.*) are anodyne and anti-spasmodic in doses of gr. j., gradually increased until they produce dryness of the throat, and other constitutional symptoms. Their power of dilating the pupil renders them particularly valuable in diseases of the eye. Their activity is

* Edin. Monthly Journal, vol. ii. p. 304.

† Journ. de Méd., t. lvi. p. 115.

‡ Lancet, Feb. 1, 1862, p. 134.

chiefly due to an alkaloid, *Atropia* (which see), and partly, also, to another principle, *Belladonnine*, first described by Luebekind. The best form for internal use is the Extract, in doses of gr. ½—gr. j., gradually increased until constitutional effects are observed, or the desired end is obtained. (An easy test of the activity of the Extract is to rub a grain or two on the eyelids. If good, it should produce full dilatation of the pupil in the course of a minute or two.) Belladonna, in doses of gr. j. gradually increased as above, allays pain and morbid irritability, and causes a particular dryness of the mouth and fauces, attended by considerable thirst. In larger or long-continued doses, its effects are dilatation of the pupil, dimness of sight, vertigo, giddiness, and a species of intoxication; the pulse small and frequent; the dryness of the mouth and fauces so greatly increased as to cause difficulty of swallowing. The alteration of vision appears to be due to the production of presbyopia from want of adjusting power of the eye, and not to diminished sensibility of the retina. (Garrod.*) *It should be immediately discontinued on the appearance of any of these symptoms.* In poisonous doses, all the above symptoms are present in an aggravated form. The delirium which occurs is of a cheerful kind, attended with fantasies which cause laughter. Death is preceded by convulsions and paralysis. The occasional symptoms present are—1. An eruption on the skin, resembling that of Scarlatina; 2. Irritation of the genito-urinary organs; 3. Amaurosis; 4. Numbness, and swelling of the face; 5. Aphonia; 6. A state termed Microscopia, or Micropia, in which state all objects appear much smaller than natural. It has only been observed, and that rarely, when Belladonna has been locally applied to the eye. The manner in which Belladonna causes dilatation of the pupil is yet undecided. Muller attributes it to a paralysing influence on the ciliary nerves; Mr. Wharton Jones, to a diminution for a time of the general sensibility of the retina conferred by the fifth nerve; and Mr. Adams considers that its operation is limited to the radiating fibres of the iris. Dilatation of the pupil equally occurs, whether the medicine be applied locally to the eye, or is taken internally; but in the latter case it is attended by great constitutional derangement. By continued use it does not generally lose this property; thus, Mr. Lawrence mentions two patients of his own, one of whom used it habitually for four or five years, and the other for fourteen or fifteen years; and it dilated the pupil just as well at the end of these periods as at the commencement. Occasionally, however, it loses its dilating power, but regains it if the application be suspended for a week or two, and then resumed. Alkalies, especially Liquor Potassæ, entirely destroy this property, and should not, therefore, be combined with it. When Belladonna is given internally, it should be commenced in small doses, until it produces some of the above constitutional symptoms in a slight degree; but if, when these appear, the disease does not yield, its continued employment is useless, and perhaps injurious. The antagonism between Belladonna and Opium is considered in art. Opium. Mr. Hughes,† in an able paper, shows that the chief physiological effects, as well as therapeutic uses of Belladonna as an internal remedy, depend upon the influence it exercises on the Pneumogastric nerve. Externally, it is used in the form of ointment, plaster, fomentation, or poultice.

Offic. Prep. Of the leaves. 1. Emplastrum Belladonnæ (Ext. of Belladonna oz. iij.; Soap Plaster oz. iss.; Resin Plaster oz. iss.).

2. Extractum Belladonnæ. (A green extract prepared from the juice.) Dose, gr. ½—gr. j.

3. Tinctura Belladonnæ (Belladonna leaves in coarse powder oz. j.; Proof Spirit Oj. Prepared by maceration and percolation). Dose, ℥v.—xxx. About half the strength of the Tinct. Bellad., Ph. Lond. and Dub.

4. Unguentum Belladonnæ (Ext. of Belladonna gr. lxxx.; Prepared Lard oz. j.).

Of the root. 1. Atropia. The Alkaloid prepared from the root. (See art. Atropia.)

* Essentials of Mat. Med. and Therap., 2nd edit. p. 258.

† British Med. Journ., May 20, 1860.

2. Linimentum Belladonnæ (Belladonna root oz. xx.; Camphor oz j.; Rect. Sp. fl. oz. xxx., or enough to make a pint after macerating the root seven days and percolation). Dr. Garrod has arrived, by experiment, at the conclusion that the liniment is ten times stronger as an external application than the tincture. Each fl. oz. of the liniment represents the activity of oz. j. of the root.

Dose of the dried leaves powdered, gr. j., gradually increased to gr. ij. or more.

Incompatibles. Alkalies and astringent decoctions and infusions.

Therapeutic Uses. Spasmodic, Convulsive, and Nervous Diseases.

456. *In Spasmodic Asthma*, the influence of Belladonna is often very marked. Dr. Debreyne* speaks highly of its efficacy, and advises the following formula:—℞ Inulæ Elecamp. ʒss., Flor. Sulph. ʒss., Pulv. Rad. Belladonnæ gr. lxxx., Pulv. Scillæ Rad. ʒj., Antim. Sulph. Præcip. gr. xx., M. et div. in pulv. xc. sumat j. ter in die. During a paroxysm, the extract, in doses of from $\frac{1}{8}$ to $\frac{1}{4}$ of a grain, repeated every hour, is often effectual in controlling the severity of the attack. Smoking a small portion of the leaves occasionally affords relief.

457. *In Angina Pectoris*, Dr. Joy† states that a Belladonna plaster over the præcordial region, renewed every seven or ten days, often procures a very considerable alleviation of the attacks.

458. *In Hooping Cough*, Belladonna has been strongly recommended by Wetzler, Guersent, Auberle, Debreyne, Hufeland, and others. Dr. Williams‡ states that it often signally diminishes the violence and the frequency of the paroxysms of cough; but, as it is liable to lose its efficacy by constant use, it is better to intermit it for a few days, and then to resume it. He states that he has given it, in doses of gr. $\frac{1}{4}$, thrice daily, to a child of two years old; gr. $\frac{1}{2}$ to one of four years; and gr. j. to one of eight years of age; and has increased these quantities to double when they ceased to relieve. These doses, generally, cause dilatation of the pupil; this, and any other symptoms which arise from the medicine, cease as soon as it is discontinued. He considers it more safe and more effectual than Prussic acid. Mr. Garraway§ has lately recommended the administration of Belladonna, in combination with Sulphate of Zinc, in Hooping Cough. He treated between fifty and sixty cases with the best results. The supervention of bronchitic or pulmonary congestion required the administration of emetics, but in only two cases had he to suspend the Belladonna treatment. He gave gr. $\frac{1}{8}$ to $\frac{1}{4}$ of Ext. of Belladonna, with from gr. $\frac{1}{2}$ to gr. j. of Sulphate of Zinc, three or four times a day, steadily increasing the dose until children of five or six years were taking from gr. iv. to gr. vj. of Belladonna,

* Thérapeutique Appliqué, 8vo, Lond. 1844

† Lib. of Medicine, vol. iii. p 305.

‡ Ibid., p. 99.

§ Lancet, Oct. 17, 1863.

and twice that quantity of Sulphate of Zinc daily. He found that the tolerance of the medicine and the subsidence of the disease were in inverse proportion to the age of the subject, a child of eight or ten weeks bearing a larger proportionate dose than one of eight or ten years.

459. *In Spasmodic Coughs* and *Obstinate Hiccoughs*, Dr. Debreyne* speaks highly of the efficacy of Belladonna, in doses of gr. j.—ij., thrice daily.

460. *In Nervous Coughs*, M. Sandras† strongly recommends the internal use of Belladonna. He states that in doses of $\frac{1}{7}$ of a grain of the Extract, every half-hour, it proves very efficacious; and that it is rare to give five or six doses before an improvement is visible.

461. *In Laryngismus Stridulus*, Belladonna promises to be a remedy of value; it deserves a further trial. An instance is mentioned by Mr. Cooper,‡ in which gr. $\frac{1}{4}$ of the Extract, in a little sugar and water, thrice daily, was attended with a great amelioration. Ultimate recovery took place.

462. *In Spasmodic Stricture of the Urethra, and of the Sphincters of the Bladder and Rectum*, the local application of the Extract is often attended with advantage. It may be smeared on a bougie, and thus introduced into the urethra, or it may be rubbed into the perinæum.§ *In Irritable Bladder*, Belladonna, carried to the extent of inducing its toxical effects, proved effectual in the hands of Mr. H. Behrend.‖

463. *In Chorea*, Belladonna has been long held in high esteem. It is chiefly useful when the disease arises from irritability of the cerebral and nervous systems, but is of comparatively little service when it arises from other causes. Cullen¶ speaks highly of it, and Stoll found it successful in doses of gr. $\frac{1}{6}$ every six hours.

464. *In Epilepsy*, arising from irritability of the nervous system, Belladonna proves useful as a sedative and palliative. Dr. Debreyne** states that he has found it of the greatest service, in doses of gr. j.—ij. daily, and gradually increasing the quantity. He conjoins it with infusion of Valerian. When the attack comes on every two or three months, the medicine should be given a week or two before the expected invasion. It may be advantageously combined with Argent. Nit. and other mineral tonics. Further evidence in favour of Belladonna in Epilepsy has been adduced by Trousseau.††

465. *In Tic Douloureux and other Neuralgic Affections*, Bella-

* Op. cit.
† Brit. and For. Med. Rev., Jan. 1850.
‡ Lancet, No. 4, 1843.
§ Brit. and For. Med. Rev., vol. ii. p. 260 (P).
‖ Lancet, June 25, 1859.
¶ Mat. Med. vol. ii. p. 246.
** Op. cit.
†† Med. Times and Gaz., Aug. 25, 1855.

donna, applied over the seat of pain, affords, in many instances, a great amount of relief. Dr. Debreyne states that for fifteen years he has constantly employed the following ointment, and that it has afforded relief in all forms of Neuralgia, Sciatica excepted:—℞ Ext. Belladon. ʒss., Pulv. Opii ℈ij., Adipis ʒss., Ol. Thymi gutt. vj., M. Mr. Bailey,* Dr. Hutchinson,† Dr. Dangerfield,‡ and others, also bear testimony to the value of Belladonna in these cases, whether employed externally or internally. Mr. Hunt§ also speaks highly of its efficacy, particularly in that which arises from uterine derangement. After the administration of a warm purgative, Mr. Hunt gives gr. j. of the Extract, for three successive hours. When a decided check has been thus given to the pain, ⅛—½ grain is administered, twice or thrice daily. This has been found sufficient to keep under both the pain and the morbid sensibility. A dose may be taken at any time when the pain is expected to return.

466. *In the Intercostal Neuralgia attendant on Herpes Zoster*, the endermic use of the Extract of Belladonna is often effectual in removing the pain. It may also be advantageously given internally.

467. *In Hydrophobia*, the external employment of Belladonna is advised by Pliny; and from time to time advocates for its use have been found. It was recommended by Turquetus, in 1696; by Schmidt, in 1763; by Munch, in 1779. More recently, it has been employed by Brera,‖ in Italy, and by Mr. Hutchinson,¶ in England. The latter authority advises it in large doses, so as fully to develop its constitutional effects. In the hands of others it has so often failed that no reliance is now placed on it.

468. *In Delirium Tremens*, Belladonna occasionally proves useful. A very aggravated case is related by Mr. Flood,** in which opium, tartar emetic, and other remedies, had failed to produce any mitigation of the symptoms, but in which Belladonna, employed in the following manner, exercised a very decided influence:—A large blister having been placed between the scapulæ, the cuticle was removed from a space three inches long by two wide, and a plaster of the pure Extract of Belladonna applied to the denuded surface. The patient, who at the time of the application had not slept for twelve days, was in a state of furious delirium, *the pupils contracted*, pulse 110. Within nine minutes from the first application of the Belladonna, he was completely subdued; the pupils dilated to their fullest extent, and he fell into a deep sleep, which lasted for seven hours. When

* On the Use of Belladonna in Disorders of the Face, &c. 1818.
† Lancet, vol. ii. 1842-43, p. 830.
‡ Ibid., Oct. 7, 1843.
§ On Tic Douleureux, Lond. 1844.
‖ Mem. Soc. Ital. Scienza Modena, t. xvii.
¶ Lancet, May 25, 1844.
** Ibid., vol. ii. 1842-43.

he awoke, he was quite rational. Two days after, the symptoms returning, the application was repeated with the same good effect. The patient perfectly recovered. Another case is mentioned by Dr. Greive,* in which the Extract rubbed in on the eyelids had a remarkable effect in alleviating the symptoms and procuring sleep. In this case there was marked contraction of the pupils.

469. *Diseases of the Eye.* Belladonna, from its property abovementioned of dilating the pupil, is a valuable agent in the treatment of diseases of the eye and in ophthalmic surgery. It assists materially in allowing the surgeon a fuller view of the disease thereby affording further scope for his manipulations. Dilatation of the pupil by means of Atropine or Belladonna is a necessary preliminary to examination with the ophthalmoscope.

470. *In Iritis, whether Syphilitic or Idiopathic,* it is of importance to keep the edge of the Iris free, and to allay the deep-seated pain which so generally accompanies this disease. Both these indications are answered by the Extract of Belladonna, which may be smeared around the eye, or a drop or two of a filtered solution (gr. xx., Aq. fl. oz. j.) may be dropped into the eye. The extracts of Stramonium or Henbane may be substituted.

471. *In deep Ulcers of the Cornea,* it is desirable that the pupil should be well dilated, in order to prevent the Iris becoming implicated in the ulcerative process. This is particularly necessary when the ulcer is situated near the centre of the cornea. The Extract should in these cases be applied to the eyebrows or eyelids.

472. *In Cataract,* many advantages are derived from Belladonna. It is generally admitted that an operation for Cataract should be deferred until the Cataract is mature; that is, until the sight has totally failed. To ascertain this point, a drop or two of a filtered solution of the Extract (gr. xx., Aq. fl. oz. j.) should be dropped into the eye, night and morning, so as to dilate the pupil fully. When, after this application, the patient is unable to distinguish objects, the Cataract may be considered mature, and the time arrived for an operation. Previous to having recourse to this manipulation, the solution (as above) may be dropped into the eye, to allow the operator a full view of the seat of disease, and to facilitate the operation.

473. *In Rheumatic Inflammation of the Eye,* a great amount of relief is derived from the daily application of an ointment, composed of equal parts of Ext. Belladonnæ and Ung. Hydrarg. Fort., to the eyebrows and temples.

474. *In Scrofulous Ophthalmia,* it proves most useful. Few remedies afford more relief to the distressing photophobia and other symptoms than the diligent use of a Belladonna collyrium.

* Edin. Monthly Journ. Nov. 1853.

Diseases of the Genito-urinary system and Abdominal Viscera.

475. *In Orchitis*, when the inflammatory symptoms have subsided, Dr. Philippe,* of Bordeaux, advises an ointment composed of 1 part of Ext. Belladonnæ and 3 of Lard. Of this, gr. xxx. are to be rubbed on the scrotum twice daily for five or ten minutes. Applied thus, he states that he has effected many cures, on an average in about five days.

476. *In Phimosis and Paraphimosis*, Belladonna, in the form of ointment (12 parts of the Extract to 30 of Lard) has been found very effectual by Dr. Mignot,† of Bordeaux. The ointment was gently rubbed over the parts every hour until relief was obtained. I have verified the value of this treatment in my own practice.

477. *In Chordee*, great relief follows the use of an ointment composed of equal parts of Extract of Belladonna and Lard, or Mercurial Ointment, to which a few grains of Camphor may be added. It should be well rubbed into the perinæum at bedtime.

478. *In Fissures of the Anus*, Dupuytren advised an ointment composed of Ext. Belladonnæ, Plumb. Acet. āā ʒj., Adipis ʒvj., M., to be applied three or four times daily. He considers that the generality of cases of fissure of the anus were dependent upon spasmodic constriction of the sphincter ani; and that, if this spasmodic action could be allayed, the fissure would at once heal. With this view he strongly advised the employment of the above formula.

479. *To Painful Hæmorrhoidal Tumours and Piles*, much relief often follows the local application of an ointment composed of Ext. Belladon. gr. lx., Adipis gr. ccxl.—gr. cccl x. Dr. Copland bears testimony to its efficacy.

480. *In Dysmenorrhœa*, Dr. Burne‡ speaks highly of the efficacy of Belladonna. In mild cases he advises gr. ¼ of the Extract twice or thrice daily. In more urgent cases he repeats the dose, first in one hour, again after an interval of two hours, until two, three, or four doses have been taken, and he adds that he has been seldom disappointed in the result. Any dimness of sight or giddiness which it may occasion soon passes away. A Belladonna plaster to the sacrum proves most useful.

481. *In Cancer of the Uterus*, a Belladonna plaster to the sacrum proves a useful palliative, and affords great relief. Sir J Eyre§ speaks highly of the value of the Extract (gr. j.) as a suppository, as originally recommended by Sir B. Brodie. He states that it exceeds all other sedatives in the amount of relief which it affords.

* Journ. des Conn. Médicales, Oct. 1845.

† Bull. Gén. de Thérap., April 1841.

‡ On Habitual Constipation, p. 103.

§ On some Exhausting Diseases. Op. cit.

482. *In Irritable Uterus*, Dr. Dewees* advises as a valuable palliative the following ointment to be applied night and morning to the parts by the point of the patient's own finger:—℞ Ext. Belladonnæ ʒss., Cerat. Simp. ʒj., M. ft. unguent.

483. *In Rigidity of the Os Uteri*, the local application of Belladonna ointment (Extract ʒj., Lard ʒj.) has been advised by Chaussier, Velpeau, La Chapelle, Dr. Conquest, and others; but the practice is one of doubtful utility. Dr. Rigby† states that, although he has seen it repeatedly tried, it never proved successful. Dr. Soma‡ has proposed Belladonna to be given internally, with the view of *shortening the duration of labour*, by relaxing the soft parts. Of the following mixture—℞ Ext. Belladonnæ gr. viij., Aq. fʒv.—he gives two or three tablespoonfuls every ten minutes. Further evidence in its favour is adduced by Dr. B. F. Barker,§ who gave it a trial in 147 cases. The Extract, in doses of gr. ¼, was given twice or thrice daily, commencing about two weeks before the end of gestation. It was given with Tartar Emetic to the plethoric. The susceptibility of the patient to its action varied very greatly: in some the dose had to be diminished.

484. *In Incontinence of Urine in Children*, Dr. Morand‖ states that he has successfully employed the Extract in doses of gr. ⅓, night and morning, for children from four to six years old. If at the end of eight days no effect be produced, a third dose of gr. ⅓ is added. He states that he found it very efficacious. According, however, to the experience of Trousseau, it fails in those children who are troubled with this affection in the day-time.¶ Several cases, illustrative of the efficacy of Belladonna in this affection, are related by Messrs. Brooke, Cowdell, Athol Johnson, and Spencer Smith.**

485. *In Intus-susception of the Bowels*, Belladonna has occasionally proved useful. In a case related by Dr. Staal,†† there was present vomiting of fæcal matter. This and the other symptoms yielded to an injection of gr. iv. of the Extract in a little gruel. Narcotism followed, and in two days the patient completely recovered.

486. *In Ileus*, it has also been successfully employed by Dr. Becker.‡‡ He prefers it for safety and efficacy to enemas of Tobacco.

487. *Other Diseases. In Aneurism of the Aorta*, Dr. Hope §§ states that, when the tumour is painful and requires support, he has found a Belladonna plaster afford the greatest relief.

* On Diseases of Females, p. 331.
† System of Midwifery, p. 197.
‡ Ranking's Abstract, vol. xx. p. 17.
§ Ibid. vol. xxxv. 1862, p. 195.
‖ Ann. de Thérapeutique, 1846.
¶ Ranking's Abstract, vol. xxii. p. 213.
** Ibid. vol xxv. p. 247
†† Oppenheim's Zietscrift, Feb. 1844.
‡‡ Gaz. Méd. de Paris, May 8, 1841.
§§ On Diseases of the Heart, p. 480.

488. *In Cancer*, Belladonna was first exhibited by Alberti, who highly praised it in the occult stage of the disease. It was afterwards recommended by Lambergen, Bellot, Lenten, and others; but failed in the hands of Zimmermann and De Haen. Some advantage, however, may be procured from its external and internal use, particularly as a palliative, and when combined with medicines which are calculated to support the energies of life, and improve the secreting and digestive functions. (Copland.*) It should never be applied externally to a large ulcerated surface, as it may become absorbed into the system, and produce poisonous effects.

489. *In Hæmoptysis*, Dr. Schroeder† states that he has found the inhalation of the fumes of the leaves of Belladonna very efficacious. He directs ʒj. or ʒiss. of the dried leaves to be thrown on hot coals, or on a hot plate, and the patient is to inhale the fumes as they arise.

490. *Scarlet Fever.* Belladonna, as a *preventive against Scarlet Fever*, was first proposed by Hahnemann in 1807. Bayle,‡ in 1830, published notices of 2,027 persons who took this medicine during an epidemic, and of these 1,948 escaped. Dusterberg, in order to test more decidedly its preventive powers, purposely omitted administering Belladonna to one child in every family; and he states that in almost every case this child alone was seized with the disease. Dr. Zeuch, physician to the Military Hospital for Children in the Tyrol, after 84 children had been attacked by the fever, administered Belladonna to the remaining 61. With a single exception, they were all preserved from its attacks, although the fever was raging around. Mr. Stievenart,§ who quotes the above, adduces his own experience in its favour. Amongst other evidence, he cites the village of Curgies, where he administered Belladonna to the children of a public school, and allowed them to have communication with other children of the village, amongst whom the disease was rife. All who took the Belladonna escaped, but the few who refused to take it were attacked by the fever. He gave it in two forms, in solution or in powder. Two grains of the Alcoholic Extract were dissolved in fʒj. of fluid, and of this two drops were given to a child of one year old daily for nine or ten days. An additional drop was added for every additional year up to twelve. In the other form, gr. ½ of the powdered root was mixed with sugar, and divided into ten doses; one to be given night and morning to children of from one to two years old, and so on in proportion. In England, it has been tested by Dr. Newbigging,‖ who states that he

* Dict. of Pract. Med., art. Cancer, vol. i. p. 287.
† Ann. Univer. de Méd., April 1845.
‡ Bibl. Thérap. t. i. p. 504.
§ Edin. Med. and Surg. Journ., Oct. 1, 1843.
‖ Edin. Monthly Journ., Sep. 1849.

succeeded in arresting the progress of the disease by Belladonna, in a public institution, after seclusion had completely failed. He gave the Extract in doses of gr. ¼. Similar testimony is adduced by Schenk, Köhler, Etmüller, Meglin, De Lens, and Hufeland; whilst Lehman, Hoffmann, Windt, Dr. Sigmond,* and others, express their disbelief in its prophylactic power. The weight of testimony is decidedly in favour of its preventive action; but further observations are required.

As a remedial agent in Scarlet Fever, Belladonna appears to be undoubtedly a valuable remedy. Dr. Burne, Mr. E. Wilson, and others, have reported favourably of its efficacy; and Dr. J. Gardner † states that he has employed it in thirty cases with the most decided benefit. He advises the Extract, in doses of gr. ½—gr. j., every three, four, or six hours, dissolved in water; to be continued until it produces dilatation of the pupil and a degree of stupor. He adds that he does not allow low delirium, even from the first, to deter him from giving Belladonna, and that he administers no other medicine whatever, except an occasional dose of castor oil. Sponging the body and gargles are allowed. Antiphlogistic diet strictly enforced. Mr. Green,‡ of Peckham, also testifies to the efficacy of this treatment.

491. *In Small-pox*, the treatment advised for Scarlet Fever has been found effectual. Mr. E. Wilson § states that he has seen this remedy exhibited with the greatest benefit, both as a prophylactic and as a curative measure.

492. *In Erysipelas*, the internal use of Belladonna, in repeated doses of $\frac{1}{6}$ of a grain, is often very effectual in reducing the excitement of the arterial system, and in procuring rest. It is best given after the exhibition of Aconite (see sect. 41). Belladonna has been administered internally in cases of *severe burn* by Mr. Hutchinson.‖ He has found it of most use in children in whom general febrile symptoms, attended with restlessness and loss of appetite, have set in without local complication. Where the burn itself is very painful, and the patient unable to procure sleep, Belladonna is inferior to Morphia.

493. *In Phlegmasia Dolens*, much benefit sometimes arises from the local application of an ointment, composed of equal parts of Ung. Hydrargyri and Ext. Belladonnæ.

494. *In Dysentery*, in order to relieve the tormina, tenesmus, and morbid sensibility, Belladonna is extolled by some German physicians, Gesner ¶ and Ziegler,** and others. It has been rarely used in British practice, and has apparently no advantage over Opium.

* Lancet, 1836-7, vol. ii.
† The Institute, Jan. 4, 1851.
‡ Ibid. Feb. 1, 1851.
§ Diseases of the Skin, p. 96.
‖ Med. Times and Gaz. Jan. 2, 1864.
¶ Bibliothec. Med. Pract. vol. ii. p. 55.
** Beobachtung, p. 35.

495. *In the Diarrhœa of Phthisis*, M. Delhage * found Belladonna very effectual in arresting the discharge.

496. *In Stricture of the Œsophagus*, a Belladonna plaster to the sternum, or friction with a Belladonna liniment, is often signally useful as a palliative. *In Cynanche Tonsillaris*, Belladonna in small doses, frequently repeated, is stated by M. Popper † frequently to effect a cure in twenty-four hours, if it be not of a syphilitic character, nor associated with diphtheric inflammation.

497. *In Insanity*, Belladonna has been recommended by Vogel, Buchoz, Ludwig, Hufeland, and others. J. Franck advises it in Mania, complicated with Epilepsy; and Müller prefers the powdered root to the Extract, and gives it in gradually increased doses, until the pupil becomes dilated. In England it has been employed, and is favourably mentioned by Drs. Seymour and Burrows. Dr. Millengen states that he found Belladonna preferable to Hyoscyamus or Conium, and that the external employment of the Extract, according to the endermic method, has been very effectual in reducing the excitement, more especially when applied to the epigastric region. Dr. Copland,‡ from whose valuable Dictionary the above is an extract, states that he has employed the following pills with evident advantage:—℞ Ext. Belladon. gr. ij., Camphor. gr. xij., Ammon. Carb. gr. xij., Pulv. Capsici gr. iij., Pulv. Acaciæ et Balsam. Peru. q. s. ft. pil. viij. Dose ij., every six hours.

498. *In the Delirium occurring in Fevers, and in Erysipelas*, Belladonna is sometimes a more effectual sedative than Opium, and is often admissible when the latter is not so. It was found particularly useful by Mr. Blackett§ in the delirium occurring in Erysipelas of the scalp. It may be advantageously combined with Camphor.

499. *In Typhus and other Low Fevers, attended with a contracted state of the Pupil*, Dr. Graves‖ advises the exhibition of Belladonna, with a view of correcting that condition of the brain which gives rise to this symptom. It is applicable only in those stages of the fever when there exists much nervous susceptibility and restlessness, and when sedatives, *cæteris paribus*, are indicated. Dr. Graves looks upon a contracted state of the pupil as contra-indicating the administration of Opium, and mentions several cases in his own practice, remarkably benefited, when that symptom was present, by the exhibition of Belladonna, combined with Musk or Tartar Emetic, as the circumstances of the case required. (See Dr. Graves' excellent remarks, art. Opium.)

500. The lactifuge property of Belladonna was first noticed by

* Lancet, 1841-2, vol. i. p. 531.
† Ranking's Abstract, 1856, vol. xxiii. p. 116.
‡ Vol. ii. p. 531.
§ Lond. Med. Repository, vol. xix.
‖ Dublin Journ. of Med. Sciences, July 1, 1838.

Dr. Goolden.* He cites two cases in which the external application of the Extract around the areola of the breast was followed by a marked decrease and eventual arrest of the lacteal secretion. Its efficacy is attested also by Mr. Burrows,† of Liverpool, and Mr. Blythman. ‡

501. *In profuse Mercurial Salivation*, the internal administration of the Extract, in doses of gr. iiss., proved useful in the hands of Dr. Espenbeck.§ He likewise used it successfully as a prophylactic.

502. ATROPIA. Atropina. Atropine. C_{34},H_{23},NO_6. A Crystalline Alkaloid obtained from the root of Atropa Belladonna, discovered by Brande, in 1819. Eq. Wt. 289.

Med. Prop. and Action. Similar to Belladonna, but much more powerful. Applied topically, one millionth, or even half a millionth, of a grain dilates the pupil (Garrod ‖). Internally given, it is a powerful poison, and if administered at all should be prescribed with the greatest caution. It is best given in the form of Liquor Atropiæ. Externally, it may be applied in the form of ointment. Its full physiological and anodyne effects may be speedily induced by its introduction into the system by the hypodermic method, but this mode of using it and other powerful alkaloids requires great caution. For the purpose of dilating the pupil Liq. Atropiæ diluted with four times its bulk of water may be employed. One drop of this solution is to be applied to the eye. Mr. Streatfeild ¶ proposes for local use in eye diseases "Atropine paper," prepared by imbuing coloured tissue-paper with a solution of the sulphate, of such a strength that a small square piece of it is equal to or contains as much of the salt as a drop of the strong solution in ordinary use. The little piece of paper (one-fifth of an inch square) is taken up on the top of the fore-finger, previously damped; and the patient's lower lid being drawn down, he is told to look upward, and the scrap of paper is put on the sclerotic conjunctiva below the cornea, almost without the knowledge of the patient; the lid is then let go, and the piece of paper left *in situ*. A handkerchief is then tied over the eyes. The full mydriatic effect is induced quite as rapidly as with the solution, and the paper is more readily carried, and more easily applied. It may be subsequently easily removed. Blue paper is preferable to white for this purpose, as it is more readily distinguishable when it has to be removed. Subsequent observations have induced Mr. Streatfeild and Mr. E. Hart, who has also investigated the subject, to substitute thin plates of atropised gelatine for paper. The gelatine being soluble in the secretions of the eye, does not require removal. Mr. Hart employs squares of this substance containing only 100,000th of a grain of atropine to the square. He finds that the higher strength originally proposed by Mr. Streatfeild (240th of a grain) produces for a time paralysis of the accommodation of the eye, and consequent inability to adjust vision for near objects. Recontraction is effected by similar squares of gelatine impregnated with Extract of Calabar Bean.** The Sulphate of Atropia was officinal in the Lond. Ph. 1851. It is omitted in the Brit. Ph.

Offic. Prep. 1. Liquor Atropiæ (Atropia grs. iv.; Rect. Sp. fl. drm. j.; Water fl. drs. vij.). Dose, ♏ij.—♏v.

2. Unguentum Atropiæ (Atropia grs. viij.; Rect. Sp. fl. drm. ss.; Prepared Lard oz. j.).

Dose of Atropia, gr. $\frac{1}{50}$—gr. $\frac{1}{10}$ or $\frac{1}{15}$. It is rarely given internally.

* Lancet, Aug. 9, 1856.

† British Med. Journ., March 29, 1857.

‡ Ranking's Abstract, vol. xxvii. p. 214.

§ Edin. Monthly Journ., Oct. 1854.

‖ Med. Times and Gaz., Feb. 20, 1864.

¶ Ophthalmic Hospital Rep., April 1862.

** Lancet, July 11, 1863; Jan. 16, 1864; Med. Times and Gaz. Jan. 30, 1864.

Therapeutic Uses. These have been investigated by MM. Bouchardt and Stuart Cooper,* by Mr. W. Cooper, Dr. Brookes,† and others. Bouchardt employed it successfully in the following cases:—

503. *In Chorea*, an obstinate case, which had resisted all other remedies, the patient, a robust man, æt. 35, yielded completely to Atropine, gr. ¼ daily, in divided doses.

504. *In Pleurodynia.* it proved successful in one very severe case. The dose first given was gr. ⅛, but from the constitutional disturbance which it created, it was reduced to gr. $\frac{1}{10}$. It was applied to a denuded surface. *In Asthma*, the hypodermic injection of Atropine over the course of the pneumogastric nerve proved successful in the hands of M. Courty.‡

505. *In Nervous Aphonia*, $\frac{1}{16}$ of a grain daily, in alcoholic solution, effected a rapid cure.

506. *In Hysteria*, it was found very serviceable. A very severe case is related, in which gr. $\frac{1}{16}$ daily afforded great amelioration.

507. *In Ulceration of the Cornea and Hernia of the Iris*, a solution of Atropine (1 part in 100 of distilled water) was successfully employed in the place of Belladonna.

508. *In Tic Douloureux and Neuralgic Pains*, Dr. Brookes found the application of Atropine ointment (Atropine gr. x., Lard ℥ss.) signally beneficial. A piece the size of a pea should be applied thrice daily. Dr. Cowdell § and others have found excellent effects in these cases from the hypodermic application of Atropine. Mr. C. Hunter ‖ finds that it acts directly on certain nerves through the circulation. The pneumogastric and sciatic appear to be directly affected. He relates a case in which Sciatica was cured by the hypodermic injection of gr. $\frac{1}{30}$. *In Dysmenorrhœa*, it is stated to be of great service, given internally.

AURANTII CORTEX ET FLORES. See CITRUS VULGARIS.

509. AURUM. Gold. A metal found extensively in South America, California, and New Holland.

Med. Prop. and Actim. Gold, in its natural state, is reported to be possessed of considerable alterative properties in Syphilis and Scrofula. The dose is stated to be gr. ¼—j. It may be given internally, or rubbed into the tongue and gums, or in the form of ointment. It is also used for stopping teeth. The salts of this metal, which have been employed in medicine, are the Teroxide (AuO_3) and Terchloride of Gold ($AuCl_3$), and the double Chloride of Gold and Sodium ($AuCl_3$, $NaCl + 4\,HO$). They possess properties similar to those of the pure metal, but are much more powerful and energetic in their action. The lower animals have been killed by them when given in even moderate doses. The *post-mortem* appearances are those of poisoning by a corrosive substance.

* Gaz. Méd. de Paris, 1849.
† Lancet, June 8, 1844, and Jan. 30, 1847.
‡ Comptes Rendus, Nov. 7, 1859.
§ Med. Times and Gaz., March 17, 1860.
‖ Lancet, Dec. 12, 1863.

The *dose* of the Teroxide is gr. $\frac{1}{10}$, of the Terchloride and of the double Chloride of Gold and Sodium gr. $\frac{1}{15}$ upwards, either in the form of pill, or rubbed into the gums; having been previously mixed with some inert powder. They require to be given with great caution. Their great price will prevent them being generally employed.

510. *Therapeutic Uses. In Scrofula*, the value of the Salts of Gold has been strongly insisted upon by Chrestien, Lalonette, Duportal, and others; but they were fairly tried, and failed in the hands of Neil and Destouches. The subjoined formula is advised by Chrestien:—℞ Ext. Rad. Daphne Mezer. ʒiv., Auri Mur. (Terchlor.) gr. j., M. ft. pil. lx. Dose, 1 daily, to be gradually increased to 8. It appears to be greatly inferior in efficacy to Iodine and its compounds, and to Cod Liver Oil.

511. *In Syphilis*, the Salts of Gold were employed by Fallopius in the fifteenth century. Of late they have been advised by Chrestien, Legrand Gibert, and other French physicians. M. Cullerier employed them extensively, and in primary Syphilis he found them highly serviceable. In constitutional Syphilis they were of little, if any use. Dose, $\frac{1}{20}$ of a grain, cautiously increased to $\frac{1}{8}$, to be joined with some mild powder, and rubbed into the gums. They are rarely employed.

512. *In Acute and Chronic Rheumatism*, the Terchloride has been extensively employed by Dr. Greiner, of Leipsic. He reports highly of its efficacy; but, as the formula which he generally used, and which he advises, contains a large portion of Aconite, it is difficult to determine how far, if at all, the Gold conduced to its efficacy.

513. Avena Sativa. The Common Oat. *Nat. Ord.* Gramineæ. *Linn. Syst.* Triandria Digynia. It is an important article of food, and as such it is chiefly employed, particularly in Scotland. It is highly nutritious, containing about 64 per cent. of Starch, and being richer in oily or fatty matter, and in proteine, than any other grain.

Its Medicinal Uses are various. *In Habitual Constipation*, and in some forms of *Dyspepsia*, oat bread, or oatmeal porridge (*vulgo* Stir-about), is sometimes very effectual as a laxative. *In Poisoning by Acrid substances*, oatmeal gruel may be given with advantage as a demulcent. Oatmeal also forms a useful suppurative poultice. Gruel prepared from oatmeal is sometimes used as a substitute for milk, for infants and young children. It is objectionable when there is a tendency to diarrhœa.

514. Balsamum Peruvianum. Balsam of Peru. The Balsam obtained by incision from the stem of Myrospermum Pereiræ. *Nat. Ord.* Leguminosæ. *Linn. Syst.* Decandria Monogynia. *Source*, Salvador in Guatemala.

Med. Prop. and Action. Stimulant and expectorant. In common with the

other balsams, it appears to act upon the mucous surfaces generally, but particularly upon that of the air-passages. Externally applied, it is a mild stimulant.

Dose, ℿx.—fl. drm. ss. or more. It may be taken in the form of emulsion with mucilage, or on sugar, or made up into pills with some absorbent powder.

Contra-Indications. Active inflammation and congestion of the lungs, and other febrile affections.

515. *Therapeutic Uses. In Chronic Coughs, Asthma, and other asthenic pulmonary diseases*, the Balsam of Peru is a very useful, stimulating expectorant. It is best given in emulsion of Gum Arabic or Tragacanth, with the addition of Squills and Syr. Papav. Alb. Sydenham employed it in the *Cough of Phthisis*. It is inadmissible whilst active inflammatory action is present.

516. *In Chronic Laryngitis*, it is advised by Trousseau, and Pidoux employed it in the manner described in Benzoin (q. v.).

517. *In Chronic Bronchitis*, the fumigation or inhalation of the vapour of the balsams was highly thought of by Dr. Mead.* He states that he has seen great benefit from the vapour of the Balsam of Tolu, the substance being thrown upon hot coals, or smoked like tobacco, through a pipe. In obstinate cases it may merit a trial. It is only applicable to asthenic cases.

518. *In Otorrhœa*, Dr. A. T. Thompson† states that he has found a mixture of f℥j. of the Balsam, and ℥ij. of Ox Gall extremely useful, when dropped into the ear every day. The aural passage should be first well syringed out with soap and water.

519. *In Cancrum Oris*, Prof. Graves‡ found a linctus, composed of f℥j. of the Balsam, and ℥ij. of honey, a very useful local application.

520. *To indolent and foul Ulcers* and *bed sores*, the local application of the Balsam renders the surface more healthy, and hastens the healing process. It is rarely applied. It may be used pure, or in the form of ointment (fl. drms. ij., Lard oz. j.).

521. *To sore and chapped Nipples*, the topical application of the Balsam in the form of ointment (fl. drm. ss. to Lard oz. j.) often proves serviceable in mild cases. *To chapped lips and hands*, the same formula may be used with advantage.

522. *In Alopecia or Baldness*, Dr. Copland§ states that he has, in several instances, employed the following formula with complete success:—℞ Adipis ℥ij., Ceræ Alb. ℥ss.; melt before a slow fire, and add Balsam of Peru f℥ij., Ol. Lavand. ℿxij.; stir till cold. This, he adds, has the effect of rendering the hair thick and persistent, and of promoting its growth in parts from which it had fallen out from impaired action of the follicles.

* Monita et Precepta, p. 58.
† Dispensatory, p. 564.
‡ Clin. Lect. vol. ii. p. 520.
§ Med. Dict. vol. ii. p. 138.

523. Balsamum Tolutanum. Balsam of Tolu. A Balsam obtained by incision from the stem of Myrospermum (Myroxylon) Toluiferum. A species closely allied to M. Pereiræ. *Source*, the Mountains of Tolu in New Granada, and other parts of South America.

Med. Prop. and Action. Stimulant expectorant. It is particularly recommended by its pleasant aromatic flavour, and is one of the mildest of the balsams; but it is, nevertheless, contra-indicated in all active inflammatory states of the lungs and air-passages. The Syrupus Tolutanus, in doses of ℥xxx.—fl. drm. j., is an agreeable and useful adjunct to cough mixtures.

Offic. Prep. 1. Syrupus Tolutanus (Balsam of Tolu oz. j½.; Refined Sugar lb. ij.; Distilled Water Oj. Prepared by boiling the balsam in the water, adding sufficient water to make fl. oz. xvj., straining the liquor when cold, and dissolving in it the sugar). Dose, fl. drm. j.—fl. drs. ij.

2. Tinctura Tolutana (Balsam of Tolu oz. iiss.; Rect. Sp. Oj. Prepared by maceration). Dose, fl. drm. ss.—fl. drm. j.

3. Tinctura Benzoini compositus (see Benzoin).

Dose of Balsam of Tolu, gr. v.—gr. xxx.

Therapeutic Uses. Similar to those of Balsam of Peru, but milder.

524. Barii Chloridum. Chloride of Barium. $BaCl + 2HO$. Muriate of Barytes. A compound of Barium 56·326, Chlorine 28·980, Water 14·964, in 100 parts; or 1 Eq. of Barium = 69 + 1, Chlorine = 35·5 + 2, Water = 18 = 122·5, Eq. Wt.

Med. Prop. and Action. For internal use, this salt should be given in the form of solution (Barii Chlor. gr. lx., Aq. Dest. fl oz. j., dissolve and strain). In small doses, gutt. viij.—x. of the solution, it is stimulant, tonic, alterative, and resolvent; in large doses, a powerful acrid, irritant poison. Its use requires great caution, and it should always be commenced in the smallest dose, and gradually increased, as the patient is able to bear it. If nausea, or purging, or giddiness ensue, the dose should be decreased, or the remedy relinquished altogether. Under its use, the appetite increases, there is augmented secretion of urine, and slight diaphoresis, at the same time that the general health improves. A very instructive case, showing the danger of large doses, is related by Dr Fergusson,* of Dublin. In large doses, it manifestly affects the brain and nervous system, and causes death by its action on those parts, and on the heart.

Dose, gr. ½ to gr. j., or gr. ij.

Incompatibles. Common water; Nitrate of Silver: all earthy, metallic, and alkaline Sulphates and Nitrates; also all alkaline Phosphates, Borates, and Carbonates.

525. *Therapeutic Uses. In Scrofula*, it was proposed as a remedy by Crawford,† and was employed with success by Pinel,‡ Hufeland,§ and others; whilst, in the hands of Mr. Burns and Dr. Thompson, it was productive of slight benefit. The danger which occasionally attends its use has been the chief reason of its not having come into general use. Mr. R. Philips‖ prefers it in many cases to Iodine, and states that where the tallow-like com-

* Dublin Quart. Journ., Feb. 1, 1844.
† Medical Communications, vol. ii.
‡ Nosograph. Philos., vol. ii. p. 372.
§ Journ. der Pr. Heilk. b. vii. st. 3.
‖ On Scrofula, 8vo, Lond. 1846.

plexion, the pale tongue, and languid circulation, accompanied by irritability of the mucous surfaces, are present, the virtues of the Chloride of Barium are often remarkably demonstrated Mr. Balman* entertains a very favourable opinion of its efficacy, particularly in chlorotic, cachectic, and other cases attended with a languid circulation and much general debility. He considers, therefore, that it is well adapted for females of a lymphatic temperament, and attended with any irregularity of the menstrual functions. In such cases, he advises the following formula:— ℞ Barii Chlor. gr. x., T. Ferri Sesquichlor. fʒij.—fʒss., Syr. Aurant. vel Aq. Dest. fʒx., M. Dose, fʒss.—fʒj. twice or thrice daily.

526. *In Scrofulous Disease of the Joints, and White Swellings*, Dr. Torget† speaks highly of its employment. He considers it a most valuable remedy, and believes that, in some cases, it has alone sufficed to effect a cure, whilst the majority of cases were greatly relieved by its use. He advises it in considerable doses, and to be persevered in for a month. *In Epilepsy and Headaches occurring in connection with Scrofula*, it is spoken of very favourably by Hufeland;‡ and in *Scrofulous Ophthalmia*, it has been used by Dr. Pay,§ of Aix in Provence, internally as well as locally, as a collyrium For the latter purpose, it should be largely diluted. *In Tetanus* it has been successfully employed by Dr. Gnecchi‖ of Milan; he employed gr. xvj. dissolved in Oj. of water, taken in divided doses in the twenty-four hours.

527. BARII IODIDUM. Iodide of Barium, or Hydriodate of Barytes. BaI. A compound of Iodine and Barium, proposed as an effectual remedy in *Scrofula and Scrofulous Affections*. Being a violent poison, it requires to be used with great caution. Dose, gr. $\frac{1}{10}$, gradually increased to gr. j. (in solution), thrice daily. Externally, it may be used in the form of ointment (gr. iv. to Lard oz. j.).

528. BEBEERIA. Bebeerine. Alkali of Bebeeru Bark derived from Nectandra Rodiæi, or Greenheart Tree, a native of British Guiana, called by the Indians, *Bibeera;* by the Dutch colonists, *Sipeeri*. *Chem. Form.* $C_{38}\ H_{21}\ NO_6$.

BEBERIÆ SULPHAS. $C_{38}\ H_{21}\ NO_6$, HO, SO_3. Sulphate of Beberia has been advised as a cheap substitute for Quinine. The following is a convenient form for its exhibition as a tonic:— Sulphate of Beberia gr. xxx., dilute Sulphuric Acid ♏ xxv., Syrup fl. oz. j., Tincture of Orange Peel fl oz. j., Water fl. oz. iv. Dose, a tablespoonful thrice daily. (Pereira.)

* Med. Gaz., Aug. 22, 1851.
† Bull. Gén. de Thérap., Sept. 1840.
‡ Op. cit.
§ Revue Médicale, April 1840.
‖ Edin. Med. Journ., April 1862.

Med. Prop. and Action. Sulphate of Beberia is tonic and anti-periodic. Its superiority over Quinine is stated to be, 1, its cheapness; and 2, its not producing headache and cerebral disturbance; and it is, consequently, preferable in plethoric subjects. It is also found to cause less gastric and vascular excitement. Warburg's Drops are said to contain a considerable portion of this alkali (Royle). Its intensely bitter taste is an objection to its use. It is officinal in the British Pharmacopœia.

Dose of Sulphate of Beberia. As a tonic, gr. j.—v.; as an anti periodic, gr. v. —x. thrice daily.

529. *Therapeutic Uses. In Intermittent and Remittent Fevers*, Dr. Maclagan,* to whom we are indebted for the introduction of this remedy, relates 40 cases of Remittent and Intermittent Fevers, treated by Bebeerine. In 34, a complete cure was effected; in the other 6, it failed. Since that period (1843), it has been extensively employed in the East and West Indies, America, &c., and, from the strong evidence adduced in its favour, we may conclude that, next to Quinine, it is one of the most efficacious remedies we possess. I cannot speak of its merits or demerits from personal experience. It is stated to be particularly serviceable where cerebral disturbance is present. Dr. Maclagan directs it to be taken in doses of gr. iij.—iv. every 3 or 4 hours, so that gr. xx. is taken before the expected paroxysm. In the treatment of these fevers in India, it has been successfully employed by Drs. Godfrey, Dorward, Anderson, Falconer, Dempster, &c.; still it does not seem to have maintained its early reputation as an anti-periodic. Dr. Garrod † states that, in three cases of intermittent fever in which he tried it, it signally failed in arresting the progress of the disease. The same patients were cured by ordinary doses of quinine.

530. *In Neuralgia, Tic Douloureux, and in the periodical Neuralgia of Pregnancy*, Dr. Maclagan* found it eminently successful, even in cases in which Quinine had previously failed. He records instances in which the benefit derived was most unequivocal. In some cases, one dose of gr. x. night and morning, is preferable to several small ones. Its efficacy in this class of cases is attested by Prof. Simpson,‡ of Edinburgh, Dr. Macfarlane, and others.

531. *In Scrofulous Ophthalmia*, Dr. H. L. Williams§ states that he has found the Sulphate of Bebeerine equally efficacious with Quinine. In one case, which he publishes at length, it effected a cure in three weeks. The dose employed was gr. ij. night and morning. Blisters, purgatives, and astringent collyria, were simultaneously employed.

BELLADONNA. See ATROPA BELLADONNA.

* Edinburgh Med. Surg. Journ. No. 163, 1843; and April 1, 1845, p. 359.
† Med. Times and Gaz., Feb 13, 1864.
‡ Edin. Med. Surg. Journ., loc. cit.
§ Med. Times, Nov. 4, 1848

532. BENZOINUM. Benzoin. Benjamin. A Resinous Exudation obtained from the incised stem of Styrax Benzoin. *Nat. Ord.* Styraceæ. *Linn. Syst.* Decandria Monogynia. *Source*, Sumatra, Borneo, Siam, and Java. *Comp.* Benzoic Acid (10 to 20 per cent.), and a Resin which is partly soluble in Ether.

Med. Prop. and Action. Expectorant and stimulant of the mucous membranes, particularly of the urinary and bronchial. The Benzoic Acid it contains is converted into Hippuric Acid, and is eliminated by the kidneys, the urine becoming more acid and stimulating during its administration. It is contra-indicated in all inflammatory and febrile affections. It is rarely given internally. Externally, under the name of Friar's Balsam, the compound Tincture has long been a popular stimulant application to wounds, ulcers, &c.

Offic. Prep. 1. Acidum Benzoicum (see Benzoic Acid).
2. Tinctura Benzoini Composita (Benzoin oz. ij. ; Prepared Storax oz. iss. ; Balsam of Tolu oz. ss. ; Socotrine Aloes gr. clx. ; Rect. Sp. Oj. Prepared by maceration). Dose, fl. drm. ss.—fl. drs. iss., suspended in water by means of mucilage or yolk of egg.

Dose of the powdered gum, gr. x.—gr. xxx.

533. *Therapeutic Uses. In Constipation depending apparently upon Stricture of the Colon,* Drs. C. Hastings and Streeten * state that the Tincture of Benzoin (*ante*) will serve to keep up the peristaltic motion without irritating the bowels. In their practice they have seen gutt. xx. taken thrice daily succeed in keeping the bowels active and regular.

534. *In Pyrosis,* the late Dr. Baillie † was in the habit of employing f℥j. of the Tincture (*ante*) incorporated with Mucilage. He states that he generally found it most efficacious. Dr. Symonds ‡ states that he can bear testimony to its value in this affection.

535. *In Strumous Laryngitis,* attended with cough and copious expectoration, Dr. Cheyne § found the following formula particularly serviceable :—℞ T. Benzoin. Co. f℥j., Mucilag. Acaciæ f℥j., Syr. Papav. Alb. f℥j., Aq. Cinnam. f℥vj., M. ft. haust.

536. *In Chronic Laryngitis and Chronic Catarrhs,* MM. Trousseau and Pidoux ‖ consider that Benzoin fumigations are of great service. They advise the air of the patient's apartment to be impregnated with the vapour of Benzoin, the drug being thrown upon burning coals ; or it may be inhaled from a common inhaler, the balsam being placed in boiling water.

537. *In irritable states of the Bladder,* Dr. Prout ¶ derived much benefit from the Tincture of Benzoin associated or alternated with Infusion of Diosma. It should be given, he observes, in small doses, largely diluted, and persevered in for a long time,

* Cyc. Pract. Med., vol. iv. p. 586.
† Posthumous Works, p. 194.
‡ Library of Medicine, vol. iv. p. 86.
§ Cyc. Pract. Med., vol. iii. p. 16.
‖ Trait. de Thérapeut. t. i. p. 467.
¶ On Stomach and Renal Diseases, p. 399.

a seton or issue being at the same time established over the region of the kidneys. Mr. Soden,* of Bath, relates four cases successfully treated with this medicine. On account of the Benzoic Acid it contains, it would be indicated as a diuretic where the kidneys require stimulating, and in cases of phosphatic deposit and of alkaline urine.

538. *In Pruritus Scroti*, Mr. E. Wilson† states that pencilling the parts with the Compound Tincture (*ante*) will be found useful.

539. BENZOIC ACID. Acidum Benzoicum. $HO,C_{14}H_5O_3$. Flowers of Benjamin. An Acid obtained from Benzoin by sublimation.

Med. Prop. and Action. Stimulant, particularly of mucous surfaces; the vapour causes great irritation of the air-passages. In the system it is converted into Hippuric Acid by the assumption of the elements of Glycocoll ($C_{14}H_6O_4 + C_4H_5NO_4 = C_{18}H_9NO_6 + 2HO$). (Garrod.) It renders the urine acid and stimulating. It is best administered internally in the form of Benzoate of Ammonia. (See Ammoniæ Benzoas.)

Offic. Prep. Tinctura Camphoræ cum Opio (see Opium).

Dose of Benzoic Acid, gr. x.—gr. xx.

540. *Therapeutic Uses. Calculous diseases.* Mr. Ure‡ observed that when Benzoic Acid was taken into the system, it was converted into Hippuric Acid, and that in this form it was excreted in the urine. He considered that this change was effected by the Benzoic Acid acting upon Uric Acid, and therefore he proposed it as a means of correcting the Uric or Lithic Acid diathesis. Dr. Keller showed this supposition to be incorrect; and the experiments of Dr. Booth§ on this subject give the following results:—1, that the introduction of Benzoic Acid into the system does not in any way affect the Uric Acid; 2, that the time required for the conversion of Benzoic into Hippuric Acid, and its subsequent appearance in the urine, is about twenty minutes, and the effect lasts from four to eight hours; 3, that the amount of Hippuric Acid exceeds that of the Benzoic by about one-third; 4, that urea is not in combination with Hippuric Acid in the urine. These results prove the inutility of Benzoic Acid as a remedy for Uric Acid diseases. Dr. Garrod,‖ in repeating these experiments, found that he could produce a very acid state of the urine, enabling that fluid to hold in solution a large amount of phosphatic salts. He employed it in a case of paraplegia, when the urine was highly alkaline, and deposited a large amount of the phosphates. He administered gr. xl. of the acid four times a day, and the *phosphatic deposits* soon became lessened, and in a few days entirely ceased. The urine also, when voided, was acid.

* Loc. cit.
† Diseases of the Skin, p. 344.
‡ Med. Chir. Trans. vol. xxiv. p. 30.
§ Trans. of American Philosoph. Society, vol. ix.
‖ Lancet, Dec. 30, 1843.

When the medicine was discontinued, the abnormal state of the urine did not return. Mr. Ure* has lately published a case of *Inertia of the Bladder*, with stagnation of urine (that fluid being strongly ammoniacal, and containing a large quantity of ropy mucus and some pus), in which the administration of gr. x. of the acid, in a mucilaginous draught, three times a day, was attended with the best effects.

541. *In Gout*, Benzoic Acid was advised by Mr. Ure and Dr. Prout, to prevent the deposition of, and to remove when formed, the masses of urate of soda, which so commonly occur about the joints of gouty subjects. It was recommended on the supposition that Benzoic Acid converted the Uric Acid deposits into Hippuric Acid; but if the conclusions of Drs. Keller, Booth, and Garrod be correct, this medicine will exercise no remedial effect in these cases. (See the preceding section.)

542. *In Incontinence of Urine in Children*, Dr. Delcour† speaks highly of the value of Benzoic Acid. He relates two cases successfully treated when all other remedies had failed. As a remedy in *Jaundice*, Benzoic Acid has recently attracted much attention It is applicable only to jaundice arising from suppression of the biliary secretion. Dr. Harley‡ mentions some cases in which benefit followed its use.

543. BERBERIS LYCIUM and BERBERIS ARISTATA. *Nat. Ord.* Berberaceæ. *Linn. Syst.* Hexandria Monogynia. *Hab.* The Himalayas. (Chitra-Kushmul, *Hind.*)

Med. Prop. and Actions. From these two plants the natives of India prepare a watery extract, called *Rusot*, which has been long esteemed a valuable febrifuge. Dr. O'Shaughnessy speaks highly of its efficacy, and also of a tincture of the bark of these trees. In addition to its febrifuge properties, it is slightly aperient, which greatly adds to its value. *Active Principle*, Berberite, which, in doses of gr. v. twice or thrice daily, is also febrifuge and tonic. It might be advantageously introduced into European practice. The Extract (Rusot) was first identified with the *Lycium* of the ancients by Prof. Royle,§ and the point has been further confirmed with great research by Prof. Simpson.‖ By the natives of India, as also by the ancients, *it is an esteemed application to various morbid states of the eye.* Its action is that of an astringent.

Dose of the Tincture (Bark oz. viij.; Proof Spirit Oij.¶) fl. drs. ij.—fl. drs. iv.; of the Alcoholic Extract, gr. xx.—xxx. thrice daily.

544. *Therapeutic Uses. In Intermittent Fevers*, Dr. O'Shaughnessy** observes, in thirty cases of tertian ague (several of them complicated with affection of the spleen) we have succeeded in checking the fever, on an average, within three days after commencing the use of Rusot. In eight cases of Quartan, six

* Lancet, Nov. 21, 1863.

† Gazette des Hôpitaux, Dec. 21, 1844.

‡ On Jaundice, &c. London, 8vo, 1863.

§ Linnæan Trans. vol. xviii. p. 82.

‖ Pharm. Trans. 1854, vol. xiii. p. 413.

¶ Beng. Pharm.

** Bengal Dispensatory.

were cured. The cases of common Quotidian thus successfully treated were so numerous that they were not recorded. In no instance was headache or constipation produced, but we have seen Rusot exasperate the symptoms of chronic dysentery and hepatitis when complicated with ague. In most cases it occasions a feeling of agreeable warmth at the epigastrium, increases the appetite, promotes digestion, and acts as a very gentle but certain aperient. The skin is invariably moist during its operation. Further evidence in favour of its anti-periodic powers is adduced by Drs. Stevin,* Francis,† Kirk, Hay, Tritton, Stewart, and other medical officers in India. By most of these practitioners, the Tincture, in doses of fl. oz. ss.—fl. drs. vj., was employed, and its efficacy appears to have been marked. *In Debility after Fevers, in Spleen Affections* (especially when given in combination with the Sulphate of Iron), *in Rheumatism*, &c., it is favourably spoken of by Dr. Francis.

545. Bismuthum Album. White Bismuth. BiO_3, NO_5. Bismuthi Nitras. (L. Ph.) The Nitrate of Bismuth, called also the Trisnitrate (L. Ph. 1836), the Subnitrate, and Magistery of Bismuth. *Comp.* 1 Eq. Teroxide of Bismuth = 237 + 1 Nitric Acid = 54 = 291, Eq. Wt. When prepared according to the direction given in the Brit. Pharm., it also contains a little water.

Med. Prop. and Action. Sedative, astringent and alterative. When given internally, it is absorbed into the system, and has been detected in the urine and in the milk. In very large doses, it is usually regarded as poisonous, and a death from gr. cxx. of this salt is recorded. M. Monneret,‡ however, regards the idea of its being an irritant poison as purely hypothetical. He states that he has constantly employed it, in doses varying from ʒiij.—ʒiiss. daily, without the slightest inconvenience; that children in his hospital take it by tablespoonfuls, so innocuous is it; and that he has never observed the slightest irritation from the largest doses (ʒiiss.) given either to the healthy or to the sick. This widely differs from the experience of others; and, until the subject has been more fully investigated, it would be advisable to continue its use in the ordinary doses. I have constantly observed that, if benefit is not derived from gr. xv. four times daily, larger doses proved equally inefficacious. Most specimens of White Bismuth contain traces of Arsenic. M. Monneret observes, that *post-mortem* examination proves that, beyond patches of black discoloration, the Nitrate produces no effect upon the mucous membrane, the consistence of which remains normal. Prof. Graves§ usually prescribes the Nitrate with powdered gum arabic (1 part of the salt to 3 of the gum); this he directs to be mixed with a wine-glassful of warm milk, which may be allowed to stand for a quarter of an hour, and ought to be briskly stirred immediately before it is swallowed. *Externally*, it is a mild stimulant, and may be applied in the form of ointment (gr. cxx.—Lard oz. j.).

Offic. Prep. Trochisci Bismuthi (White Bismuth grs. mccccxl.; Carbonate of Magnesia oz. iv.; Precipitated Carbonate of Lime oz. vj.; Sugar oz. xxx.; Gum Arabic oz. j.; Water fl. oz. vj.; Oil of Cinnamon fl. drm. ss.; divided into 720 lozenges). Each lozenge contains 2 grs. of Bismuth.

Dose of White Bismuth, gr. v.—xx.

* Indian Ann. of Med. Sci., April 1856, p. 416.

† Ibid., vol. iii. p. 254.

‡ Med. Chir. Rev., July 1849.

§ Clinical Lect., vol. ii. p. 212.

546. *Therapeutic Uses.* *In Atonic Dyspepsia*, the Nitrate of Bismuth is a remedy of great value; indeed, there are few medicines more to be relied upon. *In Gastrodynia*, it is, as Prof. Graves* observes, one of the best remedies we possess. *In Gastralgia*, its efficacy is increased by the addition of Magnesia; and Prof. Caizergues,† of Montpellier, found that its action was rendered more certain and uniform by being combined with small doses of Extract of Belladonna. *In Pyrosis*, it is strongly recommended by Dr. Marcet;‡ and Dr. Bardsley relates several cases which recovered under its use.

547. *In Hypochondriasis attended with Gastric Irritation*, Dr. Prichard§ regards the Nitrate as almost the sole, or at any rate the best remedy, the bowels being at the same time properly regulated, and exercise taken.

548. *In Ulceration of the Stomach*, the Nitrate, in doses of gr. v. three or four times a day, seems in many instances highly useful. It appears to favour cicatrization at the same time that it restores the normal and healthy condition of the mucous membrane of the stomach.

549. *In Diarrhœa attended with debility, or accompanying Phthisis*, Dr. Theophilus Thompson‖ found this salt most efficacious. In 21 cases of which he kept notes, the Diarrhœa was entirely removed in 15, transient benefit resulted in 4, and in 2 only it failed to afford relief. The dose employed was gr. v., three or four times a day.

550. *In Sub-acute and Chronic Dysentery*, the Nitrate of Bismuth is spoken of in high terms by MM. Récamier and Trousseau.¶ After premising blood-letting, and other evacuants, they found it operate most beneficially as a sedative and astringent. It might be advantageously combined with Dovers' Powder.

551. *In Chronic Laryngitis*, MM. Trousseau and Belloc speak highly of the efficacy of the local application of the Nitrate, by means of insufflation (see that article, part ii.). Dr. Williams** states that, thus applied, he has seen it used with safety and advantage, in the worst forms of Chronic Laryngitis, even in that accompanying Phthisis. Its use, however, in the manner here advised, is far from being unobjectionable.

552. *In Epilepsy*, Dr. Copland†† states that he has tried this salt in two or three cases, both alone and with other tonics and anti-spasmodics, the bowels having been kept freely open, and

* Op. cit., p. 208.
† Lond. Journ. of Med., Aug. 1851.
‡ Memoirs of Lond. Med. Society, vol. v.
§ Cyc. Pract. Med., vol. ii. p. 557.
‖ Med. Chir. Trans., vol. xiii. 1848.
¶ Gazette Médicale, Feb. 26, 1848.
** Lib. of Medicine, vol. iii. p. 50.
†† Dict. Pract. Med., vol. i. p. 807.

that it has appeared to be quite as beneficial as the preparations of Zinc.

553. *In Ringworm*, Dr. Dick, in his treatise on Porrigo, recommends an ointment of the Nitrate of Bismuth (℈j. ad ℥j.) to be rubbed into the diseased parts, night and morning, after washing. (E. Wilson.*)

554. *In ulceration of the Septum Nasi*, and also as a local application in *Chronic Skin diseases*, Dr. Pereira† states that he has used the ointment (*ante*) with advantage. Bismuth may also be applied locally as a sedative and astringent, mixed with Glycerine.‡ M. Follin applies a mixture of equal parts of Bismuth and Glycerine to the inflamed surface in *chronic granular conjunctivitis, ciliary and glandular blepharitis*. M. Dubout uses the same mixture as an application to *eczema* of the axillary, anal, or vulvar regions, and to *chapped nipples, lips, and hands*. M. Trousseau employs one part of Bismuth with three of Glycerine as an application to *fissures of the anus*.

555. *In Leucorrhœa*, Dr. Caby§ found the Nitrate applied by means of a speculum to the whole of the vaginal mucous membrane, most efficacious. The powder on a small piece of charpie was applied once a day. In *Gonorrhœa* and *Gleet*, Dr. Caby likewise found the Nitrate, suspended in water and used as an injection, a most valuable means of cure. The results of Mr. De Méric's‖ experience with it, however, in 140 cases, are not encouraging. He considers it, nevertheless, useful, especially in *gleet*.

556. Bismuthi Liquor. A Solution of the Ammonio-Citrate of Bismuth. Introduced by Mr. Schacht, of Clifton. The solution is perfectly transparent, with a slight alkaline reaction.

Med. Prop. and Action. The advantages of this fluid are derived from the fact that the metal is in a state of perfect solution. Hence, although it contains only 8 grs. of Oxide of Bismuth to the fl. oz., a fluid drachm is equivalent to a dose of 15 grs. of White Bismuth. It mixes with water and other fluids without precipitation. Dr. Martyn¶ of Bristol states that he finds it act better than the older preparations. It allays pain in acute irritability of the stomach (without nausea or much acidity), especially that which remains after ulceration. He is in the habit of giving it simply diluted with water.

Dose, fl. drm. ss.—fl. drs. iss.

Therapeutic Uses. Same as those of Bismuthum Album.

557. Bismuthi Subcarbonas. Subcarbonate of Bismuth. Carbonate of Bismuth. Prepared by adding a solution of pure Bismuth in Nitric Acid to an aqueous solution of the Carbonate of Soda: the white precipitate thus obtained is the

* Diseases of the Skin, p. 449.
† Mat. Med., vol. i. p. 761.
‡ Bull. de Thérap., vol. lxiii. p. 508.
§ Rev. Méd. Chir. de Paris, Aug. 1854.
‖ Lancet, May 12, 1860.
¶ Ibid., July 11, 1863.

Subcarbonate of Bismuth. It requires repeated washings to remove the soda. It must be preserved in well-stoppered bottles.

Med. Prop. and Action. This preparation has been proposed by Prof. Hannon,* of Brussels, as a substitute for the Nitrate. According to this writer, it is readily soluble in the gastric juice: its action is rapid, it produces no sensation of weight in the stomach, rarely constipates, colours the stools less than the Nitrate, and may be employed for a long time without oppressing the stomach. It also possesses the great advantage over the Nitrate of readily neutralising the acids in excess which are found in the *primæ viæ*. Its action appears to be sedative during the first days of its employment, and subsequently it acts as a tonic. It is perfectly insipid, excites no repugnance, and may be taken before meals.

Dose for adults, gr. xv.—xlv. in divided doses daily: for children gr. j.—v. Adults take it in water, children in honey. It may also be given in the form of lozenge.

558. *Therapeutic Uses.* These closely resemble the Nitrate, it being chiefly recommended in *Gastric and Intestinal Affections.* Dr. Hannon remarks that *all cases of Gastralgia* consecutive upon phelgmasiæ of the digestive passages, and those in which digestion is laborious, accompanied with putrid or acid eructations, or in which there is a tendency to diarrhœa and spasmodic vomiting, demand the employment of the Subcarbonate. *In the Vomiting of Children* during dentition, and in the *Diarrhœa of weak Children*, it may also be employed with every prospect of success.

559. BISMUTHI TANNAS. Tannate of Bismuth. A combination of Oxide of Bismuth and Tannic Acid, introduced by M. Cap,† of Paris, in 1859. It occurs in the form of a yellowish, insoluble, tasteless powder.

Med. Prop. and Therap. Uses. This preparation is considered to combine the astringency of Tannin with the sedative quality of Bismuth; and in the hands of Dumarquay, Aran, Bouchut, and others, is said to have proved remarkably efficacious in the treatment of *Diarrhœa*, both chronic and acute.

Dose, gr. xx.—gr. xl. or gr. lx. in the form of pill or suspended in mucilage.

560. BISMUTHI VALERIANAS. Valerianate of Bismuth. Formed by mixing a neutral solution of the Nitrate of Bismuth with Valerianate of Soda, washing the precipitate with water, and drying with a gentle heat. It forms a white powder, soluble in water.

Med. Prop. and Action. Sedative, astringent, and anti-spasmodic. It has been recommended by Righini in *Gastrodynia, Chronic Gastralgia*, and especially in *Neuralgia* and *Nervous Palpitations* (Dunglison‡). *In the Gastrodynia of Hysterical Women*, I have in several instances found benefit from its use, especially when combined with Belladonna.

Dose, gr. ½—gr. ij., thrice daily, in the form of powder or pill.

BORAX. See SODÆ BIBORAS.

* Bull. de Thérap., Feb. 15, 1857.
† Bull. de l'Acad. Imp. de Méd., Nov. 29, 1859.
‡ New Remedies, p. 707.

561. BROMINIUM. Bromine. Bromine is obtained chiefly from *bittern*, the mother liquor of sea-water; from Kelp, or the ashes of sea-plants; but it has also been found in the mineral kingdom, in combination with Silver, Zinc, and Cadmium.

Med. Prop. and Action. In its pure state, Bromine is caustic and irritant. When properly diluted, and in small doses, it is tonic, diuretic, and resolvent, and increases the activity of the lymphatic system. Its vapour is very irritating, producing violent cough, a sense of suffocation, heat of the alimentary canal, and general uneasiness. When taken in large doses, it is absorbed into the system, having been detected in the blood and in the urine. In animals poisoned by it, it produced dilated pupil, insensibility, and convulsions. *Externally*, it may be applied in solution (4 parts of Bromine to 40 of water), or in the form of ointment (gr. x.—xv. to oz. j. of Lard). Dr. Glover regards Bromine as intermediate in medicinal action between Iodine and Chlorine, but nearer that of Chlorine.

Dose, gutt. vj.—viij. of a solution of 1 part of Bromine in 40 of Water.

562. *Therapeutic Uses.* *In Scrofula*, Bromine appears to exercise considerable influence. Dr. Glover * considers it superior in efficacy to Iodine, and it has been supposed probable that the value of Cod-liver Oil in Scrofula depends upon the combination of these two substances, Bromine and Iodine. In 1837, M. Bonnet† pointed out the value of this remedy in Scrofula, and refers to the former researches of M. Pourché. He relates a case of scrofulous enlargement of the glands of the neck, in a woman who had been thus affected for seven years. A cure was completed in three months by the internal and external use of Bromine. At first, gutt. vj. in f℥iij. of water were given daily, in three doses. Subsequently, gutt. x. were given; in ten days, the dose was increased to gutt. xiv., and at last to gutt. xxx., daily. Cataplasms, moistened with a solution of Bromine, were applied to the swellings. No unpleasant symptoms occurred, and the woman perfectly recovered. Other similar cases are recorded. A very good strength for internal use is 1 part of Bromine in 40 of water. Of this, the dose to commence with is gutt. vj., three or four times daily. Besides some cases of *scrofulous enlargements* and *scrofulous ulcers*, Dr. Glover mentions cases of *Eczema* and *Carbuncle*, which recovered under its internal and external use. Bromine has been used as a disinfectant. Mr. Goldsmith,‡ of the United States army, has found the following solution useful as a local application in *Hospital Gangrene*, *Erysipelas*, and *Sloughing Sores*:—Bromine ℥j.; Bromide of Potassium gr. clx.; Distilled Water to make f℥iv. He has employed the same solution as a prophylactic in wards in which *Erysipelas* has appeared, and has found the inhalation of the vapour of service in *Diphtheria*.

* On the Properties of Bromine, &c., Edin. Med. Surg. Journ., No. clii.

† Bull. Gén. de Thérap., July 1837.

‡ American Med. Times, 1863, No. 12.

563. Brucia. Brucine. $C_{46}H_{26}N_2O_8$. An Alkaloid found in the bark and seeds of Strychnos Nux Vomica. It differs from Strychnine in being more readily soluble in water and alcohol, and in being coloured red by Nitric Acid.

Med. Prop. and Action. Said to be the same as those of Strychnine and Strychnos Nux Vomica. According to the observations of Magendie, it possesses one-twelfth of the activity of Strychnia. The dose may be increased from half a grain to three or four grains, or until it produces muscular twitchings. Its operation requires to be closely watched. Dr. Garrod,* however, asserts that Brucia *when pure* is almost inert. He states that it does not produce any of the effects of Strychnia, even when given in large doses. He adds, it is perhaps tonic and anti-periodic.

Dose, gr. ¼—gr. iij.

Therapeutic Uses are similar to those of Strychnia.

564. *In Lead Palsy*, Brucine has been employed by M. Bricheteau.† He commences with gr. ⅛—¼ daily, and gradually increases the dose until it produces tetanic twitches. Although the dose was, in some cases, increased to several grains daily, it did not cause, in any instance, either headache or disturbance of the intellect. He considers its advantage over Strychnia is, that it may be administered safely in larger doses. It appears probable that its activity may depend upon the presence of a proportion of Strychnia.

565. Bryonia Nigra. Tamus Communis. Black Bryony. *Nat. Ord.* Cucurbitaceæ. *Linn. Syst.* Diœcia Hexandria. *Hab.* England and Northern Europe.

566. *Therapeutic Uses. In Bruise Marks, "Black Eye," Ecchymosis of the Conjunctiva*, Mr. Tyrrell‡ states that the best application, and one employed by professed pugilists, is a poultice of black Bryony root (deprived of its external bark), finely scraped, and mixed with bread-crumbs or flour, so as to form it of a proper consistence. This should be inclosed in a thin muslin bag, and placed over the ecchymosis, which in most instances will disappear in forty-eight hours. A fresh application is required every six or eight hours. So efficacious is this plant considered in France, that it is there called "the herb for bruised women." Internally, given in the form of infusion, it is diuretic, and is advised by Arnaud § in *passive dropsy*.

567. Bucco. Buchu, or Bookoo. The native African name of the leaves of Barosma (Diosma) betulina, Barosma crenulata, and Barosma serratifolia. *Nat. Ord.* Rutaceæ. *Linn. Syst.* Pentandria Monogynia. *Hab.* The Cape of Good Hope and Southern Africa.

Med. Prop. and Action. Tonic, diaphoretic, and diuretic. It exercises a peculiarly soothing effect on the genito-urinary organs, whilst its tonic operation is manifested by the returning strength and increased appetite of the

* Essentials of Mat. Med. and Therap., p. 249.

† Med. Times, Aug. 9, 1851.

‡ On Diseases of the Eye.

§ Journ. de Méd., t. lxxvi. p. 257.

patient. To obtain its beneficial effects, the medicine requires to be persevered in

Active principles, a volatile oil and a bitter extractive, *Diosmin*.

Offic. Prep. 1. Infusum Bucco (Buchu leaves, oz. ss. ; Boiling Distilled Water fl. oz. x. ; infuse for an hour and strain). Dose, fl. oz. j.—fl. oz. ij.

2. Tinctura Bucco (Buchu bruised, oz. iiss. ; Proof Spirit Oj. Prepared by maceration and percolation). Dose, fl. drm. j.—fl. drs. ij.

Dose of Bucco leaves, dried and powdered, gr. xx.—gr. xl.

568. *Therapeutic Uses. In Affections of the Bladder depending upon disease of the Kidneys*, Sir B. Brodie* states that he has seen it productive of the most beneficial effects. From fl oz. iss. to fl. oz. ij. of the infusion (*ante*) should be given twice or thrice daily. It requires to be persevered in, and should be combined with Alkalies or Acids, as may be indicated by the state of the urine.

569. *Renal Affections* are often remarkably benefited by a persevering use of this remedy. Dr. Carter† regards it as one of the most valuable remedies we possess in these affections, often affording decided relief when other remedies fail.

570. *In Rheumatism*, particularly when it assumes an intermittent character, the infusion of Buchu proves serviceable. It is a popular remedy amongst the natives of Southern Africa.

571. *In Dropsy*, its use is suggested by Dr. Copland.‡

572. Byne. Malt is barley which has been made to germinate by moisture and warmth, and has been afterwards dried, by which the vitality of the seed is destroyed. By this process, part of the proteine matter of the barley is converted into diastase. This, although it does not constitute more than $\frac{1}{300}$th of the malt, serves to effect the conversion of about 40 per cent. of the starch of the seed into grape sugar and gum (dextrine). (Pereira.)

Med. Prop. and Action. Malt is nutritive, tonic, and anti-scorbutic, and in large doses laxative. It may be given in the form of decoction (oz. iij. and Aq. Oij.) to the extent of a quart daily, in divided doses. Carefully hulled and pulverised, it may be exhibited as a powder in baths, &c. An extract prepared from it may also be used.

573. *Therapeutic Uses. In Affections of the Lungs*, Malt has produced the best effects in the hands of M. Frémy.§ *In Bronchitis, Bronchial Catarrh*, and *Incipient Phthisis*, he employed the powder and the extract with remarkable success. *In the incipient stage of simple Bronchitis, unattended with feverishness, but complicated with hoarseness of voice*, he found Malt suddenly check the progress of the symptoms. Malt, he remarks, will be found especially useful at the end of those bronchial irritations which are apt to settle permanently on the chest, and often bring on severe dyspepsia in the aged. The Extract in such cases promptly restores the digestive powers, and cures the bronchitis. *In Uncomplicated Dyspepsia*, Malt liquor is beneficial when the appetite is absent, and the foul condition of the stomach has been

* On Diseases of the Urinary Organs, 3rd Ed. p. 141.

† Cyc. Pract. Med., vol. iii. p. 164.

‡ Dict. Pract. Med., vol. i. p. 624.

§ Gaz. Heb. de Méd., Jan. 8, 1862, and Ranking's Abstract, xxxv. p. 71.

removed. In Germany, it is a popular remedy for the *Anæmia of Nurses.* Macbride* long since recommended it in *Scurvy*, but it is apt to increase diarrhœa when any tendency to this exists.

574. CADINI OLEUM. Oil of Cade. Oleum Empyreumaticum Juniperi. A tarry oil obtained by the dry distillation of the wood of Juniperus Oxycedrus. *Nat. Ord.* Coniferæ. *Linn. Syst.* Dicœcia Monadelphia. Manufactured at Aix-la-Chapelle.

Med. Prop. and Action. Applied externally, it is stimulant and detergent; given internally, it is stimulant and diuretic. It has also been given as an anthelmintic. It is rarely prescribed, except as an external application in chronic skin diseases. An Oil of Cade soap is manufactured at Aix-la-Chapelle, and is used in the treatment of skin affections.

Dose, when given internally, a few drops.

575. *Therapeutic Uses. In Chronic Eczema, Lepra,* and other obstinate skin diseases, the Oil of Cade proves a most useful application. Dr. T. M'Call Anderson† recommends that it and other tarry applications should not be used in Eczema until the declining stage, when the itching and infiltration are moderated. It should be rubbed firmly over the eruption thrice daily, by means of a piece of flannel, and allowed to dry on. It should then be washed off with soft soap or petroleum soap. Or the following formula may be prescribed:—℞ Saponis Mollis, Spt. Rectif., Olei Cadini āā fl. oz. j.; Olei Lavandulæ fl. drs. iss. A little to be rubbed over the eruption night and morning, and washed off before each re-application.

576. CADMII IODIDUM. IODIDE OF CADMIUM. (CdI.)

Med. Prop. and Action. It has been found an efficient substitute for the Iodide of Lead in the form of ointment (gr. xxx.—lx. to Lard oz. j.). It is preferable to the Iodide of Lead, inasmuch as it does not produce yellow discoloration. (Garrod.‡)

577. CADMII SULPHAS. Sulphate of Cadmium. (CdO,SO_3+4HO.) Obtained by dissolving Carbonate of Cadmium in dilute Sulphuric Acid, and evaporating the neutral salt, so that it may crystallize. (P.)

Med. Prop. and Action. Similar to those of the Sulphate of Zinc, than which it is said to be ten times more powerful. It is used externally in the form of collyrium (gr. ss.—gr. iv., Aq. fl. oz. ij.), lotion (gr. iv.—viij., Aq. fl. oz. ij.), or ointment (gr. ij., Adipis gr. lxxx.). Given internally in large doses, it is a powerful irritant poison. It is said to possess anti-syphilitic properties.

578. *Therapeutic Uses. In Opacities of the Cornea,* it has been successfully used on the Continent by Rosenbaum and Kopp, and in England by Mr. Middlemore.§ *In Chronic Ophthalmia,* it has been employed by Gräfe and Giordano; and in *Otorrhœa,* as an injection, by Lincke. (P.)

* New Method of Treating Scurvy, 1767.

† Med. Times and Gaz., July 11, 1863.

‡ Essentials of Mat. Med., p. 62.

§ Ann. Report of the Birmingham Eye Infirmary, 1835.

579. Cæsalpina. (Guilandina.) Bonducella. Bonduc. (Kutkulega, *Hind.*) *Nat. Ord.* Leguminosæ. *Linn. Syst.* Decandria Monogynia. *Hab.* East and West Indies.

Med. Prop. and Action. The Bonduc seed is a valuable tonic and febrifuge, and is advised in Bengal Ph to be combined with equal parts of black pepper, both finely powdered, in doses of gr. vj.—xx. thrice daily. In the Tenasserim Provinces, the bark, and in Amboyna the root, is reported to be used in place of the kernel. Dr. Kirkpatrick* regards the bark of the root as a better febrifuge and tonic than the nut. He places the dose at gr. x.

Dose, gr. iij.—gr. x.

580. *Therapeutic Uses. In Intermittent Fevers*, the combination of the Bondue Kernel and Black Pepper (*ut supra*) is stated by Dr. O'Shaughnessy† to be used with the best effects. I have tried it in several cases, but without observing much benefit from its use. As a tonic in the debility after fever, it has proved very serviceable.

581. *In incipient Hydrocele*, the kernels, pounded small and mixed with Castor Oil, form a valuable external application (Ainslie‡). It appears in some instances to arrest the progress of the disease.

582. Cæsalpina. (Sappan.) Sappan Tree. (Bukum, *Hind.*) A native of Siam, Amboyna, and the Tenasserim Provinces.

Med. Prop. and Action. Sapan-wood is a powerful astringent, containing a principle similar to, if not identical with, hæmatoxyline. It may be given in decoction (Sapan-chips oz. j., Water Oj., Cinnamon gr. lx.; boil to Oj.), or in the form of extract (Beng. Ph.).

Dose of Decoction, fl. oz. j.—fl. oz. ij.; of Extract, gr. v.—gr. x., thrice daily.

Therapeutic Uses. Similar to those of Logwood. It may be advantageously substituted for the latter in *Chronic Diarrhœa, the later stages of Dysentery, Leucorrhœa, &c.* See Hæmatoxylum.

Cainca Radix. See Chiococca Anguifuga.

583. Cajuputi Oleum. Cayaputi Oil, or Oil of Cajuput. The volatile oil of the leaves of Melaleuca Minor (M. Cajuputi). *Nat. Ord.* Myrtaceæ. *Linn. Syst.* Polydelphia Icosandria. *Source*, Moluccas, Borneo, and Java.

Med. Prop. and Action. Diffusible stimulant, anti-spasmodic, and diaphoretic. When taken internally, it causes a sensation of warmth in the stomach, excites the action of the heart and arterial system, and subsequently induces copious diaphoresis. Externally, either alone or combined with equal parts of soap liniment or olive oil, it is a useful rubefacient and stimulant embrocation. It is a medicine of much power and value, and one too much neglected in general practice.

Offic. Prep. Spiritus Cajuputi (Oil of Cajuput fl. oz. j.; Rect. Spirit fl. oz. ix.). Dose, ℥x.—fl. drm. j.

Dose of Ol. Cajuputi, gutt. j.—v.

* Cat. of Mysore Drugs, No. 468.
† Bengal Dispens., p. 311.
‡ Mat. Med. of Hindostan, p. 81.

584. *Therapeutic Uses. In Gout and Rheumatism*, much benefit follows the external and internal use of Cajuput Oil. *In Retrocedent Gout*, it is particularly serviceable, in doses of gutt. v.—vj., frequently repeated. Externally, it should be diligently rubbed over the affected part. It may be advantageously combined with Camphor liniment. In some cases, it is singularly efficacious; in others, the amount of relief is comparatively small.

585. *In Neuralgic Affections*, it may also be employed externally and internally. It is occasionally of great service. It is inadmissible if the neuralgia appears to be connected with inflammatory action.

586. *In Spasmodic Cholera*, Cajuput Oil, employed both externally and internally, has been highly lauded; but experience does not appear to warrant the high encomiums which have been passed on it. Some cases which have recovered under its employment are recorded. It frequently fails to produce any sensible effect.

587. *In Hysteria*, much benefit attends the internal use of Cajuput Oil; but it is inferior in uniformity of action to Assafœtida or Valerian.

588. *In Flatulence and Flatulent Colic*, immediate relief often attends the exhibition of Cajuput Oil, in repeated doses of gutt. iij.—v. Drs. Ballard and Garrod state that they have rarely known it to fail.

589. *In the Low and Typhoid stages of Fever*, it may be advantageously prescribed as a stimulant, in doses of gutt. v.—viij., in emulsion. It has occasionally been found serviceable.

590. *In Toothache*, a small piece of cotton, saturated with Cajuput Oil, and introduced into a carious tooth, is stated to be an efficacious remedy.

591. *In Sprains, Contusions, and to Paralytic Limbs*, an embrocation of Cajuput Oil, diligently rubbed in, has been found useful in stimulating the parts, and relieving pain when present.

592. *In Convulsions attended by Debility or Anæmia*, its internal use is advised by Thunberg.* *In Epilepsy*, it was first proposed by Goetz,† in doses of from two to ten drops on sugar. It has been advised by several other German physicians, and may probably be of service when the disease is associated with hysteria, or where there is any great amount of nervous depression.

593. *In Nervous, Rheumatic, and Neuralgic Headaches*, Thunberg prescribed this oil externally, but Dr. Copland‡ states that he has derived most advantage from its internal administration. *In Dysphagia*, Thunberg recommends it to be diligently rubbed into the neck.

* De Oleo Cajeputi. Upsal, 1797.
† Commerc. Lit. Noric, 1731, p. 5.
‡ Dict. Pract. Med., vol. ii. p. 153.

CALAMINA PRÆPARATA. Calamine. See ZINCI CARBONAS.

594. CALCII CHLORIDUM. Chloride of Calcium. CaCl. Called also the Muriate and Hydrochlorate of Lime. A compound of Calcium 36·03, and Chlorine 63·97, in 100 parts; or 1 Eq. Calcium = 20 + 1 Chlorine = 35·5 = 55·5, Eq. Wt.

Med. Prop. and Action. In small doses, the Chloride of Calcium is stimulant, increasing the action of the secreting organs; if long continued, it appears to act specifically upon the lymphatic glandular system, causing the reduction or absorption of glandular and other tumours. In large doses, it acts as an acro-narcotic poison, drs. iiiss. proving fatal to a dog in six hours. It should always be commenced in small doses, increased with caution, and immediately discontinued if it produce nausea, vomiting, or giddiness. An aqueous solution (ʒiij. ad Aq. Dest. f ℥xij.) is ordered in D. Ph., of which the dose is ℥xx. gradually increased to fʒj. It is the only form in which it can be safely administered. Milk is the best vehicle for its exhibition. In medicinal action it very much resembles the Chloride of Barium.

Dose, gr. v.—xv. in aqueous solution.

Incompatibles. All the mineral acids except the Hydrochloric; all the alkalies and their carbonates, except Ammonia.

595. *Therapeutic Uses. In Scrofula*, the Chloride of Calcium was first advised by Fourcroy, and it was subsequently employed with success in several instances by Dr. Beddoes.* Others have testified to its value. Dr. Wood† speaks of it as a safe and efficacious remedy; Dr. A. T. Thompson‡ states that he has seen more benefit from its continued use than from any other medicine; and M. Cazenave§ considers that it is a valuable remedy, having successfully employed it in several cases. In opposition to this evidence, Dr. Thompson,‖ of Edinburgh, states that he found its use prejudicial in many cases of Scrofula, and Mr. Samuel Cooper¶ observes that he gave it in several instances without benefit. M. Cazenave advises it in doses of gr. xv.—xxx. daily, in some vegetable infusion.

596. *In Chronic Cutaneous Diseases*, M. Cazenave** speaks highly of the value of the Chloride of Calcium. He found it particularly serviceable in *Lupus*, *Eczema*, and *Impetigo*. The doses and vehicle advised by him are similar to those named in the preceding section.

597. *In non-malignant Tumours of the Ovaries*, it is recommended by Dr. Seymour, and it was found serviceable by Dr. Hamilton in *Ovarian Dropsy*.††

CALCIS CARBONAS PRÆCIPITATA. See CRETA PRÆPARATA.

598. CALX CHLORATA. Chlorinated Lime. Calcis Chloridum. Chloride of Lime; called also Hypochlorite of

* Annals of Medicine, vol. i. p. 208.
† Edin. Med. Surg. Journ., vol. i. p. 147.
‡ Dispensatory, 8th Ed. p. 748.
§ Provincial Journ., April 2, 1851.
‖ Russel on Scrofula.
¶ Surg. Dict., art. Scrofula.
** Op. cit.
†† Illustrat. of Dis. of the Ovaria, Lond. 1830.

Lime, Bleaching Powder. A compound of Hypochlorite of Lime, CaO,ClO, with Chloride of Calcium, CaCl, and a variable amount of Hydrate of Lime.

Med. Prop. and Action. In doses of gr. j.—v.—vj. in solution, it has been employed as a stimulant in typhus and putrid fevers. It is also used as a lotion (gr. lx.—oz. ss., Aq. Oj.), ointment (gr. xx.—gr. lx., Adipis oz. j.), gargle (gr. cxx., Aq. Oj., filter and add Honey oz. j.), and enema (gr. x.—xv. in solution), with a view of correcting the fetor of discharges, and stimulating the parts to which it is applied to a more healthy action. In most cases it is very effectual in fulfilling both these indications. It is the best antidote in *poisoning by Hydrosulphuric Acid, Hydrosulphuret of Ammonia, Sulphuret of Potassium, and Hydrocyanic Acid:* it should be given internally if practicable, and the vapour should be inspired. As an antiseptic and disinfectant, it is a most valuable agent; its power of destroying bad odours renders it particularly useful in hospitals, jails, sick-chambers, and dissecting-rooms. For this purpose a solution may be sprinkled thickly over the floor and walls, or cloths wrung out in the solution may be hung in the room; chlorine gas is slowly evolved. Or the solution may be placed in a saucer, and a small portion of dilute Hydrochloric Acid, or even a solution of common salt, may be added to it. This causes a rapid evolution of chlorine gas. Its power of arresting the progress, or of destroying the infection, of diseases is not well established; but its deodorizing property renders it invaluable when any infectious disease exists; and it may thus *indirectly* prove, in some cases, a disinfectant.

Offic. Prep. Liquor Calcis Chloratæ (Chlorinated Lime lb. j.; Water Cj.). A deodorizing and disinfectant solution.

Dose of Calx Chlorata, gr. j.—gr. v. dissolved in fl. oz. j.—ij. of Water.

599. *Therapeutic Uses. In Cancrum Oris*, Rilliet and Barthez speak highly of the dry Chloride of Lime, applied with the point of the finger to the ulcerated surface. The mouth should be well washed out a few seconds after each application. When cicatrization commences, a gargle, composed of 1 part of the Chloride, 30 of Mucilage, and 15 of Syrup, is recommended by the same authors.

600. *In Scorbutic and other Ulcerations of the Mouth, and in Ptyalism*, a gargle composed of Chloride of Lime gr. cxx.—gr. ccxl., Water Oj., and Honey oz. j., is very useful in correcting the fetor, and stimulating the parts to healthy action. The solution should be filtered before adding the honey.

601. *In Gangrene of the Lungs*, the Chloride of Lime, in doses of gr. iij., in combination with gr. j. of Opium, thrice daily, was employed in one case by Dr. Graves, with the effect of removing the fetor from the expectoration, and temporarily improving the symptoms. Dr. C. B. Williams* states that he has seen this medicine in solution produce the same results as those obtained by Dr. Graves, but adds, that it can only be regarded as a palliative.

602. *In Hay Fever*, it has been employed with advantage by Dr. Elliotson. In a very severe case, he directed the patient to place the Chloride in saucers in the chambers, to have rags

* Cyc. Pract. Med., vol. ii. p. 446.

dipped in it and hung about the house, to wash his hands and face with it night and morning, and to carry a small bottle of it about with him to smell at in the course of the day. This plan gave so much relief, that it was tried in other cases; and, although it did not succeed in all, it did in most of them. Three patients out of four derived advantage from it. It acts either by destroying the emanations, or by lessening the irritability of the mucous membranes. (Dr. Watson.)

603. *In Typhus and Typhoid Fever*, the Chloride, in doses of gr. iij.—v., has been employed with advantage; but it is inferior to the Liq. Sodæ Chlor. (see that article). Dr. Copland advises it in doses of gr. j., every hour.

604. *In Fetid Discharges from the Uterus, Vagina, or Rectum*, an injection composed of gr. lx.—gr. cxx. of the Chloride, in Oj. of water (filtered), proves highly useful, by its deodorizing influence. It may be used either warm or cold, and should not be of sufficient strength to cause pain. The same injection also proves serviceable *in fetid discharges from the ears and nostrils.*

605. *In the Purulent Ophthalmia of Infants*, Dr. Pereira* states that he has found a weak solution of the Chloride very successful. *In the Purulent Ophthalmia of Adults*, it has also been used with marked benefit by Dr. Varlez,† Dr. De Condé,‡ Mr. Guthrie, and others. The strength employed by Dr. Varlez was ʒiij.—ʒiv. in fℨj. of water.

606. *In Erysipelas*, a solution of the Chloride (gr. lx.—gr. cxx., Aq. Oj.) has been found very serviceable as a lotion. The parts should be kept constantly wetted with it.

607. *In Scabies*, a strong solution of the Chloride (ʒj.—Aq. Oj.) is stated by Derheims§ to be an effectual remedy. *In Tinea Capitis* it has also proved useful. Mr. E. Wilson‖ advises it in *Ecthyma*, and also to correct the unpleasant smell of the cutaneous secretion in *Osmidrosis*.

CALCIS HYPOPHOSPHIS. See SODÆ HYPOPHOSPHIS.

608. CALCIS LIQUOR. Solution of Lime. Aqua Calcis. Lime Water is thus prepared:—Take Slaked Lime 2 oz., Distilled Water 1 gallon. Introduce the Lime into a stoppered bottle containing the Water, and shake well for two or three minutes. After twelve hours the excess of Lime will have subsided, and the clear solution may be drawn off with a siphon as it is required for use, or transferred to a well-stoppered green glass bottle. The process may be repeated with the remaining Lime four or five times, if the Lime be pure and the bottle accurately stoppered.

* Mat. Med., vol. i. p. 640.
† Med. and Phys. Journal, Nov. 1827 (P).
‡ Ann. d'Oculistique, 1858, vol. xl.
§ Journ. de Chim. Méd., Dec. 1827.
‖ Diseases of the Skin, pp. 247—267.

Med. Prop. and Action. Antacid, lithontriptic, astringent, and resolvent. Milk is the best vehicle for its administration. In large or long-continued doses, it occasions thirst, constipation, and derangement of the digestive organs. It renders the urine alkaline. Unlike other alkalies, it diminishes the action of secreting organs, and hence has been termed astringent. Externally it is applied to ulcers, cutaneous affections, &c.

Offic. Prep. Linimentum Calcis (Solution of Lime fl. oz. ij.; Olive Oil fl. oz. ij.). An external application in burns.

Dose of Liq. Calcis, fl. oz. ss.—fl. oz. iij. Each fl. oz. j. contains about gr. ss. of Lime.

Incompatibles. Acids; Acidulous and Metallic Salts; Ammoniacal Salts; Alkaline Carbonates; Borates, and Astringent Vegetable infusions.

609. *Therapeutic Uses. In Acidity of the Primæ Viæ, in Cardialgia,* and *in Dyspepsia arising from or connected with Acidity of the Stomach,* Lime Water, in doses of fl. oz. iss.—fl. oz. ij., is often speedily and permanently effectual. It is particularly useful in Dyspepsia occurring in persons whose urine shows a strong acid reaction, and when vomiting is a prominent symptom. It is best given in milk. Milk with Lime Water has also been found of great service as an article of diet in *Ulcer of the Stomach.*

610. *In Diarrhœa,* depending upon Acidity, Lime Water may be given with manifest benefit. In these cases, mucilage is the best vehicle. It is especially of use in the diarrhœa of infants and young children, and is administered with the best effect when purging and acidity result from artificial feeding. A sixth or fourth part of Lime Water may be added to each pint of milk. *In Chronic Dysentery,* used in the form of enema, it proves useful in some instances. It may also be given by mouth.

611. *As a solvent for Urinary Calculus,* Lime Water was first employed by Dr. Whytt, of Edinburgh, in 1743; and subsequently by Drs. Hales, Butler, and Campbell. They confined their experiments chiefly to injecting a weak solution of Lime Water into the bladder, but Dr. Butler, in 1755, also employed it as a drink, and in the form of an enema. If we are to credit their reports, their practice was signally successful, not only affording relief, but in many instances effecting a perfect cure. The practice, however, fell into disuse until the investigation into the claims of Miss Stephen's nostrum for dissolving calculi, when it was discovered that the basis of this much-famed formula was Carbonate of Lime. It does not appear, however, to possess any particular virtues over the other alkalies as a solvent. It is occasionally useful as a palliative, but cannot be regarded as a curative agent. (See LITHONTRIPTICS.)

612. *In Pruritus Pudendi,* an effectual removal of the distressing symptoms is occasionally effected by the topical application of tepid Lime Water, together with perfect rest and light clothing. *To prevent Pitting in Small-pox,* Dr. J. Bell* recommends the

* Glasgow Med. Journ. June 1861.

application of cotton wool soaked in Linimentum Aquæ Calcis. He speaks highly of its efficacy.

613. *In Cancer of the Uterus*, Dr. Dewees* speaks favourably of Lime Water as a palliative. He advises Lime Water, a little warmed, to be thrown up into the vagina by a syringe, several times a day. He states that one of the best forms he knows of is when a portion of quicklime is slacked in an infusion of chamomile flowers, and permitted to settle clear before using it.

614. *In Leucorrhœa and Gleet*, an injection of a weak solution of Lime Water occasionally effects a cure when other remedies fail.

615. *In Scrofula*, Lime Water is sometimes productive of benefit. Dr. Shapter† states that Lime Water, taken with milk to the extent of f℥ss., three or four times a day, has in his practice, in many cases, been of the most eminent service, especially in Scrofula of long standing, where gland after gland becomes the seat of abscess and ulcer. *In Scrofulous Ulcers*, Dr. Pereira‡ states that he frequently employs Lime Water as a wash, and that, in many instances, its power of checking excessive secretion has been most marked. In *Phthisis*, Lime Water and Milk has been strongly recommended by Dr. T. K. Chambers and others as an ordinary beverage.

616. *In Scabies*, the people of Lyons commonly employ a lotion composed of Lime oz. xij. and Ovj. of water. The parts are well washed with it daily; the epidermis desquamates, and a radical cure is effected. It is reported to be very efficacious.§

617. *In Burns and Scalds*, there are few local applications more generally useful or efficacious than a mixture of Liq. Calcis and Olive or Linseed Oil. This formula is well known as Carron Oil.

618. *In Poisoning by the Mineral and Oxalic Acids*, Lime Water acts as an antidote.

619. *In Tinea Capitis, and other cutaneous diseases*, with profuse discharge, Liq. Calcis proves useful as a stimulant and astringent wash. *In Ephelis and Freckles*, Mr. E. Wilson‖ derived benefit from a liniment composed of equal parts of Aq. Calcis and Oleum Olivæ, with a small quantity of Liq. Ammoniæ.

620. *In Diabetes*, Lime Water as a common drink, either alone or with milk, has been advised by Willis, Fothergill, Watt, Frank, and others. It can only be regarded as an adjunct to other treatment.

621. *In Ascarides*, injections of three or four ounces of Lime

* Diseases of Females, p. 270.
† Library of Medicine, vol. v. p. 180.
‡ Mat. Med., vol. i. p. 618.
§ Med. Times, vol. xix. p. 162.
‖ Dis. of Skin, pp. 354, 355.

Water have been recommended by Dr. Price,* of Margate. He has found two or three repetitions sufficient in the most obstinate case.

622. Calcis Liquor Saccharatus. Brit. Pharm. Saccharated Solution of Lime is thus prepared:—Take Slaked Lime 1 oz., Refined Sugar 2 oz., Distilled Water 1 pint. Rub the Lime and Sugar together in a mortar, transfer the mixture to a bottle containing the water, cork the bottle and shake it occasionally for a few hours. The clear solution to be drawn off with a syphon. Each fluid oz. of this solution contains 7·11 grains of Lime.

Calcis Saccharas. "Saccharate of Lime," introduced in 1859 by Dr. J. Cleland,† is prepared as follows:—Slake ʒviij. of Quicklime; rub up with it ʒv. of White Sugar, and add Water Oj. Stir and filter. The product should be perfectly clear, with only a slightly yellowish tinge. Each ʒj. by weight should contain 18 grains of Lime. Under the same name M. Béral proposed a preparation formed by saturating simple syrup with lime and filtering—a much stronger formula than that above mentioned, and less generally applicable.

Med. Prop. and Action. The solubility of lime in water is increased by the sugar. These preparations are therefore valuable when it is desirable to administer lime in full doses. *The Medical Action and Therapeutic Uses* of Saccharate of Lime are thus summed up by Dr. Cleland,—"It is of course a powerful antacid, and probably the best we have, since it is stronger and pleasanter than Magnesia, and does not weaken the digestion like the alkalies. Far from doing so, its most important use is as a tonic of the alimentary system in cases of *obstinate dyspepsia.* As such, its action is more powerful than that of the vegetable stomachic tonics. It is suitable for cases with too little, as well as for those with too great secretion of gastric juice. It seems particularly serviceable in *gouty constitutions.* In dyspepsia of hysterical and anæmic cases, it does not seem to be of much use. It should not be taken early in the morning on an empty stomach, as then it is liable to create nausea. The best period for taking it is after meals; its alkalinity does not at all interfere with digestion. So far from causing constipation, it is a very valuable means of overcoming gradually that *Chronic Constipation* which so frequently *accompanies dyspepsia;* and persons who for years have been in the constant habit of using aperient medicines, have been able to abandon them, in a great measure, after taking this remedy for some time. It will also be found serviceable in checking *the diarrhœa of disordered digestion,* acting as Lime Water does; only that the latter is so dilute, that it is often impossible to administer it to adults in the quantity desirable. It may be found useful also in *allaying the cravings of the intemperate.*"

Dose of the Pharmacopœia Solution, ℥xxx.—fl. drs. iss. in a glass of water twice or thrice daily; the dose of Dr. Cleland's solution, ℥xv.—fl. drm. ss. or fl. drm. j.

623. *Therapeutic Uses. Chronic Diarrhœa of Children.* M. Béral's Saccharate of Lime was first employed in medicine by Dr. Capitaine; and Trousseau and Pidoux‡ state that they have

* Lancet, March 26th, 1864.
† Edin. Med. Journ., Aug. 1859.
‡ Trait. de Thérap., vol. ii. pp. 382-7.

employed it with advantage in the treatment of the *Chronic Diarrhœa of Children.* They have also been in the habit of adding ten grains of it to each quart of milk intended for the supplementary diet of children at the breast; and they consider that by this precaution the milk is prevented from becoming speedily sour, and thereby the tendency to diarrhœa is diminished. This mode of administration is well worthy of trial. The dose for infants is gr. xv.—gr. xxx.; that for adults, gr. lxxv.—gr. cl. diluted with 20 or 30 times its weight of simple syrup.

624. Calcis Phosphas Præcipitata. Precipitated Phosphate of Lime. $3\,CaO,PO_5$. Prepared by dissolving bone-ash in Hydrochloric Acid, precipitating with Ammonia and drying at a temperature not exceeding 212°. Phosphate of Lime, called also the Triphosphate and the Subphosphate of Lime, is obtained chiefly by the calcination of bones, and is a compound of Lime 53·84, Tribasic Phosphoric Acid 46·16, in 100 parts; or 3 Eq. Lime = 84 + 1 Tribasic Phosphoric Acid = 72 = 156, Eq. Wt.

Med. Prop. and Action. Alterative and antacid.
Offic. Prep. Pulvis Antimonialis. (See art. Antimonii Oxidum.)
Dose of Phosphate of Lime, gr x.—gr. xxx.

625. *Therapeutic Uses. In Scrofula and Scrofulous Affections*, the Phosphate of Lime is highly spoken of by Dr. Benche.* He considers, that although it cannot be said really to cure the scrofulous disease, yet that it is of the most eminent service as a palliative. *In Scrofulous Ulcers*, it was given with the most marked benefit, in doses of gr. viij.—gr. xx. daily. It should be taken with the breakfast, dinner, and supper, so as to be thoroughly mixed with the food. *In Scrofulous Diarrhœa*, he also obtained from it, in doses of gr. vj.—x. daily, the most marked and satisfactory results.

626. *In Chronic Syphilitic Ulcers*, given as above, he also found it highly useful.

627. *In Rickets*, it has been administered, on the theory that this disease arises from a deficiency of lime in the system; but the treatment has not been always found successful. Bonhommet employed it without benefit. Dr. Budd,‡ however, reports very favourably of the practice. He gives gr. v.—x. in chalk mixture thrice daily, adding a chalybeate if anæmia is present. He believes that the deterioration in the teeth of children is due to the insufficient supply of inorganic constituents of these organs in the food, and suggests, as an article of diet, biscuits containing a portion of the Phosphate. In *promoting the formation of Callus in fractured bones*, the evidence of M. Milne-Edwards,§ whose

* Lancet, April 19, 1851.
† Duncan's Annals for 1797.
‡ British Med. Journ., June 7, 1857.
§ Comptes Rendus, 1856, vol. xi. p. 681.

experiments were performed on animals, is decidedly favourable to the internal administration of the Phosphate. He believes that it may be usefully employed as an adjuvant—expediting the union in ordinary fractures, and tending to prevent non-solidation in others. M. Gosselin* also speaks favourably of its use in minimum doses of gr. viiss. daily.

628. *In Intermittents*, the Phosphate of Lime, mixed with one-sixth of its weight of washed Sulphur, has been advised by Mr. A. Blacklock,† Madras Medical Establishment. He states that he has found it most efficacious; that it may be given with advantage in all cases and in all stages of well-marked intermittent fevers; that its use should be preceded by a purgative; and that the only symptoms which contra-indicate its employment are,—1, a change in the usual appearance of the tongue (in intermittents), and its acquiring a white, shaggy, or villous coating; and 2, the fever assuming a remittent form. Under these circumstances, Quinine should be had recourse to. The dose of the Phosphate of Lime and Sulphur for adults is gr. cxx. thrice daily, in treacle, &c. It should be continued steadily until the usual period for the expected fever has passed without any febrile return. The dose for children between the ages of 2 and 5, is gr. xxx.; between 5 and 12, gr. lx.; and after that age, gr. cxx. thrice daily. Low diet should be enforced, and all acid vegetables and fruits and garlic prohibited.

629. CALCIS SULPHURETUM. Sulphuret of Lime. Called also Hepar Calcis, or Liver of Lime.

Med. Prop. and Action. The Sulphuret is not given internally; it is chiefly used in solution as a bath in *Scabies* and other cutaneous diseases. *In Ringworm*, M. Gibert and Mr E. Wilson have successfully employed the following ointment:—℞ Calcis Sulphuret. ʒj., Camphor. gr. xv., Adipis ʒj., M.

CALOMEL. See art. Calomelas, under preparations of Mercury (Hydrargyrum).

630. CALOTROPIS GIGANTEA. Asclepias Gigantea, Linn. (Mudar, *Hind.*) *Nat. Ord.* Asclepiadeæ. *Linn. Syst.* Pentandria Digynia. *Hab.* India generally, and the Tenasserim Provinces.

Med. Prop. and Action. The root, bark, and juice of this tree have, for many centuries, been held in high esteem by the natives of India as emetic, purgative, and diaphoretic. Dr. O'Shaughnessy,‡ after extensive trials, found the alcoholic extract a powerful cathartic, but so uncertain in its operation that no reliance was to be placed upon it. Of the powdered bark of the root, however, he has formed a high estimate. In doses of gr. xxx.—gr. lx. it proves emetic after an interval varying from twenty to sixty minutes, generally causing much nausea, and in about one case in every three, inducing a cathartic operation. In doses from gr. ij.—v. every half-hour, it proves nauseant, diaphoretic, and, after several doses, gently cathartic. On the whole, he considers it an excellent substitute for Ipecacuanha, for which it is substituted

* Gaz. des Hôpitaux, 1855.
† Printed Memo. forwarded by the Madras Medical Board, June, 1850.
‡ Bengal Dispensatory, p. 453.

in Beng. Ph. in the preparation of Dover's Powder, thus:—Powdered Bark of the root of Mudar ℥ij., Opium ℥j., Sulphate of Potash ℥j., M. Its activity depends upon an extractive principle, *Mudarine*.

Dose of Powdered Bark of Root: as an emetic, gr. xxx.—gr. lx.; as a nauseant and diaphoretic, gr. ij.—gr. v.

631. *Therapeutic Uses. In Leprosy and Elephantiasis Græcorum*, Mudar has long been a popular Indian remedy. Its real value was first investigated by Mr. Playfair,* and subsequently by Mr. Robinson;† they both agree in speaking highly of its efficacy, and state that, in the early stage of Leprosy, before the eruption becomes pustular, there is no medicine from which more benefit is to be derived than from this. Prof. Royle‡ employed a closely-allied species, C. Hamiltonii, which is very common in Upper India, and known by the same native name. He states that he prescribed the fresh bark of the root, dried and powdered, alone, and successfully, in incipient cases of Leprosy and other cutaneous affections. It is inadmissible when the eruption is pustular. Dose, gr. iij.—x. thrice daily; but this quantity should be diminished if it produce much nausea or vomiting.

632. *In Secondary Syphilis*, Mr. Robinson§ regards Mudar as a highly valuable remedy. Where Mercury has been extensively employed, Mudar rapidly recruits the constitution, heals the ulcers, removes blotches from the skin, and perfects the cure.

633. Calumba. Calumbæ Radix. Calumbo. The Root of Cocculus Palmatus (Menispermum Palmatum). *Nat. Ord.* Menispermaceæ. *Linn. Syst.* Diœcia Hexandria. *Source*, Mozambique, E. Africa, and the Isle of France.

Med. Prop. and Action. Mild tonic and stomachic. It is a very mild and valuable tonic, and is, in most cases, easily retained on the stomach, when the more powerful vegetable bitters are rejected. It gives rise to little, if any, arterial excitement, and does not cause constipation. As it contains neither Tannic nor Gallic acids, it may be given in combination with the salts of iron. The infusion requires to be freshly prepared daily, as, in consequence of the large proportion of starch which it contains, it rapidly decomposes. It contains a non-nitrogenized crystallizable principle, *Calumbine*, which is but slightly soluble in water or proof spirit; an alkaloid, *Berberine* ($C_{10}H_{17}NO_3$); and an acid, *Calumbic Acid*. Calumbate of Berberine is contained in the Tincture and Infusion. (Garrod.‖) The root of Fraseri Walteri, American Calumba, may be substituted for it.

Offic. Prep. 1. Extractum Calumbæ (a Spirituous Extract). Dose, gr. v.—gr. x.

2. Infusum Calumbæ (Calumbo in coarse powder oz. ss.; Cold Distilled Water fl. oz. x Macerate one hour and strain). Dose, fl. oz. j.—fl. oz. ij.

3. Tinctura Calumbæ (Calumbo bruised oz. iiss.; Proof Spirit Oj. Prepared by maceration and percolation). Dose, fl. drm. ss.—fl. drs. ij.

Dose of Calumbo in powder, gr. x.—gr. xxx.

Incompatibles. Lime water; Corrosive Sublimate; the Acetate and Di-acetate of Lead.

* Trans. of the Med. and Phys. Soc. of Calcutta, vol. i. p. 84.

† Med. Chir. Trans., vol. x.

‡ Mat. Medica, p. 480.

§ Op. cit.

‖ Essentials of Mat. Med., p. 148.

634. *Therapeutic Uses. In Gastric Irritation after Fevers, and other debilitating diseases*, and in *Dyspepsia, in which irritation of the Stomach is a prominent Symptom*, there are few medicines which have proved more generally useful than Calumba, given in the form of Infusion. It effectually allays the irritation, strengthens the digestive organs, increases the appetite, and gives a tone to the system generally. It may be advantageously combined with other tonics or sedatives, particularly with Prussic Acid.

635. *In Ataxic and nervous Vomiting, particularly in that of Pregnancy*, the Infusion of Calumba is a most efficacious remedy. It will often succeed when more powerful sedatives have failed. A very severe case of nervous vomiting is recorded in Ann. Univers. 1844,* which, after resisting almost every other mode of treatment, yielded to gr. viij. of Calumba root, thrice daily. It has little influence in the vomiting attendant on cancer of the stomach; and is contra-indicated, when inflammation is present.

636. *In Diarrhœa attendant on Dentition*, Dr. Percival† found the Infusion of Calumba effectual in arresting the discharge. It may be given with safety to young children. In other forms of *Diarrhœa*, it has also been employed with advantage.

637. *In the Low Stage of Puerperal Fever*, Dr. Denman‡ found Calumba more generally useful than Cinchona.

638. *In Mesenteric Fever*, Dr. A. T. Thompson§ states that he has found Pulv. Calumbæ, combined with Rhubarb and the Sulphate of Potash, exceedingly valuable.

639. *As a Tonic*, it is particularly adapted *to debility after Fevers and other exhausting diseases, when the stomach is highly irritable, for the puerperal state, and for childhood.* It may be given in Infusion; or the Tincture may be advantageously added to an ordinary effervescing draught.

640. CAMBOGIA. Gamboge. The Gum Resin of an undetermined species of Garcinia. *Nat. Ord.* Guttiferæ. *Source.* Imported from Siam, the product probably of Hebradendron pictorium (Garcinia pictoria of Roxburgh). The Burmese name for this tree, which is found in some parts of the Tenasserim Provinces, is *Tha-nat-tan-ben*. Another variety of Gamboge is described by writers as Ceylon Gamboge, but it is unknown in English commerce.

Med. Prop. and Action. Hydragogue, cathartic, and anthelmintic. It often causes violent vomiting and griping, but this may be in a great degree obviated by combining with it soap, the carbonate of potash, rhubarb, or calomel; or by giving it in a liquid form, properly diluted. When taken internally, it becomes absorbed into the system, and communicates its colouring

* Med. Chir. Rev., July 1844.
† Med. and Experiment. Essays, vol. ii. p. 3.
‡ Introduction to Midwifery, vol. ii. p. 524.
§ Dispensatory, p. 360.

principle to the urine, the quantity of which secretion it also increases. It may be advantageously given either in the form of the Compound Gamboge Pill; or, Gamboge oz. ss., Carb. of Potash oz. j., Alcohol fl. oz. xij. Macerate for a week. Dose, ɱxl.—fl. drm. j. in a convenient vehicle. It is the base of Morrison's Pills.

Offic. Prep. Pilula Cambogiæ Composita (Gamboge oz. j.; Barbadoes Aloes oz. j.; Aromatic Powder oz. j.; Hard Soap in Powder oz. ij.; Syrup q. s.). Dose, gr. v.—xv.

Dose of Gamboge in powder, gr. j.—v.

Contra-indications. 1, Pregnancy; 2, the presence of the Catamenia; 3, Irritability or inflammation of the genito-urinary organs, particularly in the female; 4, Acute inflammation of the abdominal viscera; 5, Debility; 6, Infancy and childhood.

641. *Therapeutic Uses. In Dropsical Affections*, Gamboge, from its powerful hydragogue cathartic property, often proves serviceable. Dr. Christison* speaks highly of it. He states that he has found Gamboge act in these cases with great force, both in occasioning free watery evacuations and in reducing the dropsy, yet without any particular tormina, exhaustion, or other uneasiness being occasioned, although administered once every two days, or even daily. He advises it in doses of gr. v.—viij., or even ix., every other day, finely powdered, and combined with Cream of Tartar. Of all hydragogues, he regards Gamboge as the most certain and the most easily managed.

642. *In Obstinate Constipation*, the Compound Gamboge Pill (*ut supra*), in doses of gr. v.—viij. every day or every other day, is stated to be very efficacious, when this state depends upon want of tone in the intestines. *In Constipation arising from Torpor of the Colon*, Dr. Symonds† enumerates this pill, in combination with equal parts of Pil. Coloc. Co., amongst the most efficient purgatives.

643. *In Cerebral Affections*, when it is desirable to produce revulsion from the brain, the Compound Gamboge Pill, in combination with Calomel, will often be found to fulfil this indication. It is inadmissible, however, when the vital powers are greatly depressed, or when great debility is present.

644. *Against Tænia or Tape-Worm*, Gamboge often proves effectual, particularly when conjoined with Calomel, Soap, &c., but its tendency to occasion griping and nausea renders its general employment injudicious. When employed, it should be in small doses (gr. iij.) and frequently repeated till the desired effect is produced. The quantity of gr. xx. in divided doses should never be exceeded. It should not be given to young children. Oil of Male Fern, Turpentine, and Pomegranate are safer and more efficacious, and should, consequently, be preferred.

* On Granular Diseases of the Kidneys, pp. 152-4.

† Lib. of Med., vol. iv. p. 139.

645. CAMPHORA. Camphor. A concrete volatile oil obtained by sublimation from the wood of Camphora Officinarum (Laurus Camphora of Linnæus), a native of China and Japan. *Nat. Ord.* Lauraceæ. *Linn. Syst.* Enneandria Monogynia. It is also found in white crystalline fragments in the wood of Dryobalanops Camphora. It is found in small quantities in other plants; that used in the Tenasserim Provinces is obtained in considerable quantities, and of fair quality, from the leaves and stalks of the Blumea Grandis (De Cand.). *Comp.* 20 Eq. Carbon = 120 + 16 Hydrogen = 16 + 2 Oxygen = 16 = 152, Eq. Wt.

Med. Prop. and Action. In doses of gr. ij.—v.—x. Camphor acts as a stimulant; it increases the action of the heart and arteries, exhilarates the spirits, excites warmth of body and diaphoresis; the pulse is rendered softer and fuller. These effects are very transitory, and are followed by depression. In somewhat larger doses, it allays spasm and pain, and induces sleep. In poisonous doses, it produces vomiting, vertigo, delirium, and convulsions. It acts chiefly on the nervous system; and, like Sulphur, it transudes through the skin, and is exhaled by the lungs. Camphor is an extremely diffusible stimulant, being rapidly extended over every part of the system, and disappearing sooner than any other narcotic. When it is desired to exert a stimulant influence, it should be given in small doses, frequently repeated. When its sedative effects are required, it should be administered in large doses, and at long intervals.* It exercises a powerful influence on the genito-urinary system; occasionally it causes strangury, yet by some it has been advised to relieve the strangury produced by Cantharides. It has also been recommended as an antidote in poisoning by Opium. Externally, dissolved in oil, it forms a valuable anodyne embrocation. It is a common ingredient in toothpowders, but it is stated, perhaps without sufficient reason, that its continued use in this way renders the teeth brittle.†

Offic. Prep. 1. Aqua Camphoræ. *Syn.* Mistura Camphoræ (Camphor oz. ss.; Distilled Water Cj.). Dose, fl. oz. j.—fl. oz. iij. Used as a vehicle.

2. Linimentum Camphoræ (Camphor oz. j.; Olive Oil fl. oz. iv).

3. Linimentum Camphoræ Compositum (Camphor oz. iiss.; Oil of Lavender fl. drm. j.; Strong Solution of Ammonia fl. oz. v.; Rectified Spirit fl. oz. xv.).

4. Linimentum Saponis (see Sapo Durus).

5. Spiritus Camphoræ (Camphor oz. j.; Rectified Spirit fl. oz. ix.). Dose, ɱx.—fl. drm. ss., suspended in water by means of mucilage.

6. Tinctura Camphoræ cum Opio (Opium grs. xl.; Benzoic Acid grs. xl.; Camphor grs. xxx.; Oil of Anise fl. drm. ss.; Proof Spirit Oj.). *Syn.* Tinctura Camphoræ Composita. Paregoric Elixir. Dose, fl. drm. ss.—fl. drs. iv.

Dose of Camphor, gr. ij.—gr. xx.

Modes of Administration. Camphor may be given in substance, in the form of pills, or suspended in mucilage. Raspail advises other methods:—1, Camphor reduced to an impalpable powder for snuff;—2, small lumps are impacted in quills, the end stopped with blotting-paper; these "Cigars" are to be smoked *cold; i.e.* the air is to be sucked through them, and the saliva swallowed;—and 3, in the form of lotion. ℞ Liq. Ammon. 100 parts, Aq. Dest. 900 parts, Sodii Chlor. 20 parts, Camphor 2 parts, Ol. Ros. q. s. This "*Eau Sedative*" has obtained great celebrity as an anodyne application. Another mode of applying Camphor is by fumigation. The patient is covered with a blanket, which should be pinned close to the throat, and from oz. ss. to oz. j. of Camphor is placed on a heated iron plate within the blanket. In a few minutes it produces a profuse perspiration.

* Cyc. Pract. Med., vol. iii. p. 159. † Lond. Med. Gaz., vol. iii.—iv. 1847

646. *Therapeutic Uses. In Typhus and Typhoid Fevers; and in Fevers, whatever may have been their original character, when they assume this type*, Camphor proves a remedy of great value and power. Dr. Copland,* after quoting a large number of German writers in its favour, observes that he has prescribed Camphor, not only in the above fevers, but also in *pestilential, exanthematic, puerperal, and common continued fevers*, and that he is satisfied as to its good effects, either when exhibited as above, or when combined with other appropriate medicines, and when given in proper doses. In the stage of excitement attended by vital prostration, the dose, and the medicines which should be associated with it, should have reference to the state of vital power, to the mildness or severity of the disease, and to the nature of the prominent affection or complication. As the disease passes into the nervous stage, and more especially as this stage passes into extreme exhaustion, the dose of Camphor should be increased, and conjoined with stimulants, tonics, and antiseptics. The inflammatory state of any organ supervening in the course of typhoid fevers does not contra-indicate the use of Camphor, if given appropriately to the degree of vascular action and of vital power. Hufeland directs a solution of Camphor in Acetic Acid to be taken internally, and used externally, early in most states of typhoid fever. Prof. Huss,† who speaks highly of the efficacy of Camphor in these diseases, considers its contra-indications to be—1, a flesh red tongue; 2, tenderness of the abdomen; 3, diarrhœa.

647. *In Asthenic Inflammations, and also in the advanced stages of Acute Inflammation when the vital powers are greatly exhausted*, Camphor in large doses, conjoined with other stimulants and sedatives, proves in the highest degree beneficial.

648. *In Inflammation of the Brain*, after the due employment of depletion and evacuants, when great watchfulness is present, or great irritability or mental excitement exists, narcotics may, in some instances, be given with advantage. Great caution is necessary in their selection and employment; but as Dr. Copland observes, where the propriety of having recourse to these medicines admits of a doubt, they should be combined with moderate doses of Camphor. When the disease arises in the course of typhoid fevers, Camphor, as advised in sect. 646, is one of the best medicines we possess. In such cases it may be advantageously combined with Calomel. *In delirium accompanied by depression of the nervous energy, and of the vital powers*, Camphor proves eminently serviceable, and should be conjoined with tonics, sedatives, &c. If the delirium be accompanied by coma or stupor, it

* Dict. Pract. Med., vol. i. p. 1030. † Dublin Journ. of Med. Science, Sept. 1845.

may be given in large doses, combined with the more powerful stimulants. Its use in these cases requires caution.

649. *In Small-pox and the Exanthemata*, Camphor, given internally, is stated to be effectual in restoring the eruption, when, from any cause, it has receded. In confluent or malignant Small-pox, when the vital power is greatly depressed, Camphor alone, or combined with Opium, may be advantageously employed. It is inadmissible when inflammation of important viscera supervenes. Rosenstein states that, if a portion of the skin be smeared with Camphorated ointment, no pustules will appear on that portion; but Pereira regards the statement as incorrect.

650. *In Insanity*, Camphor has been advised by Percival, Hufeland, Millingen, &c., but is unfavourably spoken of by Prichard, Haslam, and Burrows. Dr. Copland* entertains a high idea of its value. When the disease occurs in persons of a nervous temperament, or whenever it is connected with deficient nervous or vital power,—when the head is cool, and the mental affection is independent of vascular fulness or action,—when depletion and alvine evacuations have been carried sufficiently far,—or when exhaustion follows these or previous excitement, he considers that Camphor may be given with advantage. Dr. Millingen† observes that it is not advisable when there is cerebral excitement, with a hot skin, full pulse, and wild countenance; but where there are much restlessness and uneasiness, with a low weak pulse, or cold and clammy skin, it will be found most beneficial. Its use, he adds, requires much discrimination. Dr. Copland prescribes it in combination with Morphia, Hyoscyamus, Belladonna, or with Nitre or Digitalis; but the dose, as well as the combination and mode of exhibiting it, ought to be regulated by the peculiarities of the case, and the effects of previous treatment. He speaks favourably of the mode of administration advised by Esquirol:—dissolving from ʒss. to ʒj. of Camphor in fʒij. of Vinegar, and giving it in an aromatic infusion, in the course of the twenty-four hours. Cold applications to the head, the shower-bath or tepid bath, may be resorted to during its use, especially when increased heat of the skin or scalp is caused by it.

651. *In Puerperal Insanity*, Camphor, given as advised by Esquirol in the last section, has been found highly serviceable. Dr. Copland‡ prescribes it (gr. v.) with an equal quantity of Hyoscyamus in the morning and afternoon, and double this quantity of each at bedtime. Dr. Prichard§ speaks favourably of it, given in combination with the Sesquicarbonate of Ammonia.

* Dict. Pract. Med., vol. ii. p. 253.
† Aphorisms on the Treatment, &c. of the Insane, Lond. 1840. Loc. cit.
‡ Op. cit. vol. ii. p. 548.
§ Lib. of Medicine, vol. ii. p. 142.

In Delirium Tremens, occurring in persons of a nervous habit, where the exhaustion is great and Morphia inadmissible, Dr. Laycock* states that Camphor (gr. ij.—iij. every third hour) sometimes proves useful, or it may be given combined with Ammoniæ Carb. and Henbane.

652. *In Asthma*, Camphor, observes Dr. Copland,† is one of the most generally beneficial of any of the class of narcotics or anti-spasmodics; and, when judiciously exhibited, is applicable to nearly all the forms and complications of the disease. In the nervous and spasmodic varieties it is most serviceable when given in large doses (gr. iij.—x.), and combined with Musk, Castor, Assafœtida, &c., or with sedatives. *In Angina Pectoris*, he‡ also speaks favourably of its operation, particularly when given in combination with Opium or Hydrocyanic Acid. *In Hooping-Cough*, he§ likewise found it of great service. It should be given in very small doses with diaphoretics at an early period; and in larger quantities with tonics, anti-spasmodics, &c., in the advanced stages. Moderate depletion and purgatives should precede its administration. *In Asthenic Pneumonia*, Camphor, he observes, is one of the most valuable remedies that can be employed. It may be given in doses of gr. ij.—vj., or viij., every four, five, or six hours, combined with Calomel and Opium, or with Antimony and Henbane, according to the character of the attack. The latter combination may be preferred, when the inflammation approaches the sthenic form, and then the Camphor may be given in smaller doses. (Copland.‖) When the disease progresses *to Gangrene of the Lungs*, it may also be given with advantage.

653. *In Epilepsy*, Camphor was advised by Locher¶ and others. It appears to be chiefly indicated when the disease is associated with hysteria, or with uterine derangement, and should be given in combination with tonics and anti-spasmodics.

654. *In Puerperal Convulsions*, Dr. Copland** advises a combination of Camphor (gr. v.—x.), Calomel (gr. x.), and Musk (gr. x.), followed by a purgative of Croton Oil. These means, aided by a cathartic or anti-spasmodic enema, will, he observes, seldom fail of producing a solution of the paroxysm. He adds that his experience of the excellent effects of Camphor are confirmed by Dr. Hamilton, although Chaussier expresses an unfavourable opinion of it.

655. *In Rheumatic and Nervous Headaches*, the local application of Raspail's "Sedative Water" (*ut supra*) has, in many instances, been found to afford speedy and permanent relief.

* Edin. Med. Journ., Nov. 1862.
† Dict. Pract. Med., vol. i. p. 147.
‡ Ibid. vol. i. p. 67.
§ Ibid. vol. ii. p. 248.
‖ Dict. Pract. Med., vol. ii. p. 777.
¶ Observ. Pract., No. xl.
** Dict. Pract. Med., vol. i. p. 433.

656. *In Diseases of the Heart*, Camphor is occasionally very beneficial. Dr. Lombard,* of Geneva, states that, when given internally in doses of from gr. iij. to xij. daily, it renders regular the most tumultuous *palpitations*, and removes the *dyspnœa* which so often attends Hypertrophy of the Heart with dilatation. Quinine and Iron may be given as tonics, at the same time.

657. *Diseases of the Genito-urinary organs. In Dysmenorrhœa*, Camphor has often a most beneficial influence. Dr. Dewees† regards it as the most certain and uniform palliative. He advises it in doses of gr. x. every one or two hours, until relief be obtained; or gr. xxx.—lx. in mucilage, with T. Opii f℥j., may be given as an injection. Its external application to the loins, in the form of ointment or liniment, affords great relief.

658. *To relieve the pains in the Loins of Women in the latter stages of Pregnancy*, Dr. Montgomery‡ states that he has successfully employed an embrocation composed of equal parts of Camphor and Soap liniments. According to Dr. Harriss,§ a saturated solution of Camphor in Glycerine applied over the breast is more effectual *for arresting the secretion of Milk* than Belladonna.

659. *In After-pains*, Dr. Dewees‖ bears testimony to the value of Camphor. He directs ℥j. to be suspended in f℥vj. of mucilage, and of this he gives a tablespoonful every hour or two hours, until the pains cease. Sometimes he administers it in substance (gr. x.) every one or two hours. In two instances, it produced serious constitutional irritation, but this subsided when the medicine was discontinued. He found it particularly serviceable in cases in which Opium was inadmissible.

660. *In Pruritus Muliebris Pudendi*, Camphor, in doses of from gr. v.—x. twice or thrice daily, given in the form of emulsion, will often afford a great amount of relief. If the Pruritus depend upon the presence of ascarides in the rectum, turpentine enemas should be likewise employed. Its external application also proves useful.

661. *In Nymphomania*, Camphor has been found serviceable. As an anti-aphrodisiac it was employed by the ancients; and many modern writers have testified to its sedative influence on the genital organs. Alibert cites a case of a nymphomaniac patient whom he cured with ℥j. of Camphor for a dose; and Esquirol has successfully treated similar cases with the same remedy. Blood-letting, the use of the hot bath, mild pur-

* Brit. and For. Med. Rev., vol. i. p. 264.

† Diseases of Females, 6th Ed. p. 137.

‡ Obs. on the Dub. Pharmacopœia.

§ Braithwaite's Retrospect, 1862, vol. xlv. p. 296.

‖ System of Midwifery, 8th Ed. p. 201.

gatives, and strict moral superintendence, are the other measures indicated.*

662. *In Spermatorrhœa*, Camphor is often signally useful. In three cases of involuntary spermatic discharges, I have effected a speedy improvement and subsequent cure by Camphor (gr. iij.—iv.) with gr. ¼ of Opium, thrice daily. The only other measures employed were mild purgatives and out-door (walking) exercise.

663. *In Cancer of the Uterus*, Dr. Dewees † found that, when Opium failed to procure rest, this may be obtained by liberal doses of Camphor. "Indeed," he adds, "we have several times found that Camphor was a valuable addition to our slender means of procuring rest, where Opium has disagreed, or worn itself out."

664. *In Inflammation of the lining membrane of the Uterus*, he ‡ also states that he found greater benefit from Camphor in ten-grain doses than from any other remedy. It may be given in emulsion alone, or combined with Extract of Hyoscyamus. The hip-bath, fomentations, and leeches are at the same time advisable.

665. *In Irritable Uterus*, Camphor has been found to afford great relief, when given in the form advised in the last section.

666. *In Chordee*, Camphor, employed internally and locally, is the best remedy we possess. It may be given in doses of gr. iij.—v., with gr. j. of Opium, in the form of pill, at bed-time. Camphorated mercurial ointment, or Camphor (gr. xx.—xxx.) in a poultice, to the perinæum, is also very efficacious.

667. *In Incontinence of Urine*, M. Guérard found great benefit from enemas composed of gr. iv. of Camphor, dissolved in the yolk of an egg, and mixed with f℥j. of water, so that it may be retained in the rectum.

668. *Other Diseases. In Hysteria*, Camphor proves most serviceable. It may be given alone, or combined with Assafœtida or Opium. Dr. Dewees § states that it is chiefly indicated and most efficacious in the hysterical paroxysms which precede the appearance of the menses. It may be given in doses of gr. v.—x. in julep or in powder, as may be most convenient.

669. *In Toothache*, Dr. A. T. Thompson ‖ states that almost immediate relief is afforded by introducing into a carious tooth a pill of Camphor and Opium, or a solution of Camphor in Spt. of Turpentine.

670. *In Chronic Rheumatism*, frictions with Camphor liniment prove highly serviceable. Dr. Pereira ¶ states that Camphor (gr. v.—viij.) and Opium (gr. j.) given internally prove useful by their sudorific and anodyne properties. Camphor fumigations

* See Lancet, vol. i., 1834, p. 232.
† Diseases of Females, p. 274.
‡ Op. cit.
§ Op. cit. p. 546.
‖ Dispensatory, p 518.
¶ Mat. Med., vol. ii. part 1, p. 458.

are also occasionally attended with excellent effects.* *In Syphilitic Rheumatism*, inunction of Camphor with Mercurial Ointment is beneficial.

671. *In Gout*, Camphor has been highly extolled by many German writers. Dr. Copland† considers that, in doses and combinations appropriate to the circumstances of the case, it is a most unexceptionable remedy, inasmuch as it has an anodyne effect, whilst it promotes the exhalations and secretions. It may be combined with antimonials, mercurials, or anodynes, according to existing pathological states. He adds that he has frequently prescribed it in the more chronic and irregular forms of gout; and found it, particularly in conjunction with Opium or Morphia, a most valuable remedy. Tepid Camphorated Spirit, locally applied, often affords great relief.

672. *In Gangrene*, when the vital powers are greatly depressed, and when at the same time much nervous irritability is present, full doses of Camphor, combined with Opium and other stimulants, prove highly serviceable. When vascular excitement is great, it may be advantageously combined with Nitre.

673. *In Dissection Wounds*, Dr. Copland‡ regards Camphor both as a prophylactic and remedial agent. Immediately on receiving a dissection wound, he directs the hand to be plunged into a solution of Camphor; the part having been previously well cleansed, a pledget of lint saturated with the solution should also be kept to the part. In the subsequent treatment, where fever, &c., supervenes, he lays great stress on the importance of administering large doses of Camphor with Opium or Calomel.

674. *As a means of allaying Tetanoid symptoms from Strychnine*, Dr. Arnett§ found Camphor effectual in one instance. Of a saturated solution of Camphor in whiskey, he gave 2 fl. oz., and repeated it in half an hour. *In Strabismus* of a nervous character, Mr. Howard‖ states that he has seen cases of some years' standing, much benefited by fumigating the eye with Camphor. *In involuntary spasmodic contraction of the orbicularis muscle (Winking)*, he¶ found Camphor fumigations of service. *In Amaurosis*, it has also been given internally with advantage. It is chiefly applicable when the disease depends upon deficient innervation. The vapour locally applied may be tried.

675. *To prevent bed sores*, Dr. Graves** advises washing the parts with Camphorated Spirits of Wine, when any discoloration occurs. *In Eczema* and other *Skin Diseases attended with burning heat*, Camphor may be advantageously employed as a local

* Med. Chir. Rev., vol. lvi. p. 554.
† Dict. Pract. Med., art. Gout, vol. ii.
‡ Ibid. vol. i. p. 305.
§ Ranking's Abstract, 1857, vol. xxv. p. 50.
‖ Pathology of the Eye, p. 159.
¶ Ibid. p. 197.
** Clin. Lect. vol. i. p. 187.

sedative. Dr. T. M'Call Anderson * recommends that the eczematous surface be sprinkled over with a small quantity of a powder containing Camphor, and that a cold potato starch poultice be afterwards applied.

676. Canella. Canellæ Cortex. The Bark of Canella alba. *Nat. Ord.* Guttiferæ. *Linn. Syst.* Dodecandria Monogynia. *Source*, South America and West Indies.

Med. Prop. and Action. An aromatic stimulant. Its activity depends upon an acrid volatile oil, a resin, and a bitter extractive. It also contains starch and a crystalline saccharine substance, *Canelline* (Mannite). Internally, it is chiefly used as an adjunct to resinous cathartics, to correct their griping quality. The powdered leaves of this tree, observes Dr. O'Shaughnessy, yield their active principles and colouring matter to melted lard, and give a good substitute for savine ointment for exciting a discharge from blistered surfaces.

Dose, gr. x.—gr. xxx. in powder.

677. *Therapeutic Uses*, very limited. It is occasionally employed in *Dyspepsia*, *Atonic Gout*, *Chronic Rheumatism*, *Secondary Syphilis*, *in Debility*, and other diseases, when a warm aromatic is indicated. *In Scurvy*, it is said to prove useful. It is generally given in combination with other remedies, as Aloes, &c.

678. Cannabis Indica seu Sativa. Indian Hemp. The dried flowering tops of the female plant, from which the resin has not been removed. *Nat. Ord.* Urticaceæ. *Linn. Syst.* Diœcia Pentandria. *Hab.* Cultivated in India and Persia. The Hemp grown in India and the Tropics differs from that grown in England, by containing a resinous secretion, of which the Indian name is *Churrus*. The name of the dried plant which has flowered, and from which the resin has not been removed, is *Gunjah*.

Med. Prop. and Action. The intoxicating properties of Indian Hemp appear to have been known for a long period in the East; but its medicinal qualities were first investigated by Dr. O'Shaughnessy, in 1838. The first effect of a large dose, he observes, is decidedly stimulant, producing increased arterial action, and a great exhilaration of spirits; the patient is very talkative, singing songs, asking for food, and declaring himself in perfect health. This state gradually passing off, is followed by a complete state of catalepsy, which lasts for some hours, and then subsides, leaving the patient without headache, pain, or any other ill consequence. In all the cases in which it was tried, the effects were closely analogous; alleviation of pain in most, remarkable increase of appetite, unequivocal aphrodisia, and great mental cheerfulness. The pupils were freely contractible on the approach of light. In those who habituate themselves greatly to its use, or in those who try it for the first time, there occasionally occurs a species of insanity closely resembling delirium tremens This state is at once recognised by the strange balancing gait of the patient, a constant rubbing of the hands, perpetual giggling, and a propensity to caress the bystanders. The eye wears an expression of cunning and merriment; there is no increase of heat or frequency of the circulation; the skin and functions remain natural. In a few instances the patients are

* Medical Times and Gazette, July 11, 1863.

violent, in many highly aphrodisiac, and all were voraciously hungry. A blister to the nape of the neck, antimonials, and salines are sufficient to remove this state. After extensive trials with Indian Hemp, Dr. Clendenning* characterises it as "a soporific or hypnotic, in conciliating sleep; as an anodyne, in lulling irritation; as an anti-spasmodic, in checking cough and cramp; and as a nervine stimulant, in removing languor and anxiety." Dr. Christison found it effectual in inducing uterine contractions in labour. Drs. Ballard and Garrod† observed that it communicates a peculiar odour to the urine, when taken internally. Dr. Garrod,‡ however, has never found any direct soporific effects from Indian Hemp, although, he observes, "in some cases of wakefulness arising from an over-irritable state of the nervous system, it has allowed sleep to ensue" He believes it to be an anodyne and anti-spasmodic, exerting an influence both on the brain and spinal cord. It differs from opium in not causing constipation and loss of appetite. He thinks that a thorough investigation of its physiological and therapeutical action is still a desideratum. Dr. Bryan§ found it possessed of diuretic qualities if given in doses of gutt. xx. of the Tincture every four hours. These were more marked where the diuretic action had been first established by other remedies: it seemed then to maintain the action already begun. The dose required in temperate climates is much larger than that required in India. Dr. O'Shaughnessy, when in England, had to give gr. x.—xij. of an Alcoholic Extract to produce the same effect as would be produced in India by gr. j.—iss. Its activity appears to depend upon Cannabin, or Resin of Hemp; it also contains a small portion of volatile oil. It should be remembered that when the Extract or Tincture is mixed with water, the resin is precipitated and becomes slowly deposited on the sides of the bottle. A little Spirits of Ammonia causes it to be held in solution. (Garrod)

Offic. Prep. 1. Extractum Cannabis Indicæ (Indian Hemp lb. j.; Rectified Spirit Oiv. Prepared by maceration for seven days, pressing out the tincture and evaporating it to a proper consistence). Dose, from gr. ¼—gr. ij., or more.

2. Tinctura Cannabis Indicæ (1 oz. of the Extract dissolved in 1 pint of Rectified Spirit). Dose, ℥v.—℥xxx.

679. *Therapeutic Uses. Tetanus.* Great hopes were entertained on the first introduction of Hemp, that an effectual remedy had at last been discovered for Tetanus. Cases successfully treated by it were reported by Dr. O'Shaughnessy,‖ Mr. O'Brien, Dr. Esdaile, and also by Messrs. Hughes and Templar, the veterinary surgeons of Calcutta. Subsequently, however, it failed in the hands of Mr. Raleigh; and Dr. Laurie,¶ of Glasgow, after trying it fairly in 26 cases, reported unfavourably of it. More recently, it has been tested by Prof. Miller,** of Edinburgh. He tried it in 3 cases of Traumatic Tetanus, and in each effected a complete cure. In other examples of the disease, he adds, though it has failed to cure, it never failed to give relief. He advises it in doses of gr. iij. of the Extract, or gutt. xxx. of the Tincture, every half-hour, hour, or two hours, the object being to produce and to maintain narcotism. Purgatives and

* Med. Chir. Trans. vol. xxvi. chap. 15.

† Mat. Med., p. 413.

‡ Med. Times and Gazette, Feb. 20, 1864.

§ L'Union Méd., 1857.

‖ Bengal Dispensatory, p. 598.

¶ Lond. and Ed. Monthly Journal, Nov. 1844.

** Brit. and For. Med. Chir. Rev., Jan. 1851.

cold to the spine were employed in the above cases. On the whole, it appears certain that it is a valuable resource in this disease, and it should in all cases have a fair trial.

680. *Cholera.* In an epidemic Cholera which visited Calcutta in 1838, Dr. Goodeve employed Cannabis very extensively, and his report upon it was in the highest degree favourable. In 1839 it had also an extensive trial in that city. Dr. O'Shaughnessy* states that he knows no remedy equal to it as a general and steady stimulant, when given to Europeans, in the dose of ɱxxx. of the Tincture, during the tractable stage of the disease. He states that he has known the pulse and heat return, and the purging checked, by a single dose. It allays vomiting much more certainly than Opium, and is not so likely to lead to cerebral congestion. Others have testified to its efficacy. Dr. Willemein,† of Cairo, in a paper read before the Academy of Medicine of Paris (October 17, 1848), related several cases successfully treated by the Tincture of Cannabis in repeated doses of from x. to xxx. drops. In one case of collapse, the patient revived immediately upon taking the remedy. Dr. Willemein considers that it stimulates the nervous centres at a period when their influence is all but suppressed; thus actually preventing the extinction of life. It is right to add that Cannabis will not be found successful in *all* cases, that it can lay no claim to the character of a specific, and that Dr. O'Shaughnessy found that in cases occurring in natives, but little benefit was derived, probably from the fact that they are habituated to its use from their childhood.

681. *Hydrophobia.* Dr. O'Shaughnessy relates one case in which he employed this remedy, and, although the result was eventually fatal, it afforded great temporary benefit and alleviation of the symptoms. He advises the resin in soft pills, to the extent of gr. x.—xx., to be chewed by the patient, and repeated according to the effect produced.

682. *In Chorea*, it has been found a useful palliative. Dr. C. Williams‡ found it afford relief during the period of its exhibition; but he adds that it seemed to exert no radical effect on the disease, for the symptoms returned when the medicine was discontinued. Under its use, the appetite greatly increased, and the general health improved. Dr. Pereira§ speaks favourably of its use.

683. *In Delirium Tremens*, Dr. O'Shaughnessy‖ states that he has given the Tincture a very extensive trial, and that the results are satisfactory. In its operation it resembles opium and wine,

* Bengal Dispensatory, p 590.
† Medical Times, vol. xix. p. 58.
‡ Lancet, 1842-3, vol. ii. p. 266.
§ Mat. Med., vol. ii., part 1, p. 372.
‖ Op. cit.

but is much more certain than these remedies. In the cases in which the Opium treatment is applicable, Hemp will be found more effectual. It produces a great change in the mind of the patient, "the horrors," as they are emphatically called, passing into a state of cheerful and boisterous mirth, and the patient sinks into a happy sleep. Discrimination is of course necessary in the employment of this remedy.

684. *Infantile Convulsions.* One case of convulsions occurring in a child forty days old, in which Hemp was employed, and the child recovered, is related by Dr. O'Shaughnessy. The case is highly interesting and curious, but of little practical value, as few practitioners, if any, will be bold enough to employ so dangerous a remedy, in the large doses in which it was given in this case, to children of such tender years.

685. *In Menorrhagia and Uterine Hæmorrhage*, the Tincture of Hemp, in doses of gutt. v.—x. thrice daily, has been successfully employed by Dr. Churchill,* of Dublin, on the recommendation of Dr. Macguire. Dr. Churchill, after an extensive trial of its virtues, states that it was productive of extraordinary success, both in the number relieved and the rapidity of cure. *In impending Abortion*, he also found it very effectual in several cases.

686. *In Sciatica, Tic Douloureux, and Neuralgic Affections*, Cannabis appears to act most beneficially. Mr. Donovan,† of Dublin, quotes several cases, both in his own practice and in that of others, in which its use was attended with the most unequivocal success. Those who were not cured were all more or less relieved by its use. Dr. C. B. Williams and Dr. Clendinning‡ also mention cases of this description, which were benefited by its use.

687. *In Hay Fever and Hay Asthma*, Dr. Mackenzie§ states that he has seen such favourable effects from Indian Hemp, in cases of morbid irritability of the nervous system, that he is induced to recommend a trial of it in the present disease.

688. *In lingering and protracted labours depending upon atony of the Uterus, and insufficiency of uterine contractions*, Dr. Christison‖ found the Tincture of Indian Hemp highly serviceable. He relates several cases in which it was given with unequivocal effect. He gave it in doses of gutt. xxx., and remarks that in none of the instances in which he administered it, were the ordinary physiological effects produced; there was no excitement or intoxicating action, and there did not seem to be the least tendency to sleep. Compared with Ergot of Rye, he observes:—1,

* Theory and Practice of Midwifery, p. 64.

† Dublin Journ., vol. xxvi. p. 401.

‡ Lancet, 1842-3, vol. ii. p. 266.

§ Lond. Journ. of Med., July 1851.

‖ Monthly Journ. of Med. Science, 1851, pp. 39—117.

While the effect of the Ergot does not come on for some considerable time, that of Hemp, if it is to appear, is observed within two or three minutes;—2, The action of Ergot is of a lasting character; that of Hemp is confined to a few pains, shortly after its administration;—3, The action of Hemp is more energetic, and perhaps more certainly induced, than that of Ergot.

689. *In violent palpitation of the Heart*, Dr. Christison* found the Indian Hemp succeed when all other remedies had failed to afford relief. He quotes a case of twenty-one years' standing in which it had a very beneficial effect.

690. *In Eczema with intense itching*, when Morphia in large doses not only failed to procure sleep, but appeared to aggravate the severity of the pruritus, the Tincture of Hemp, in doses of gutt. xxv., induced sleep and comparative ease. It was continued every night for six weeks, without increasing the original dose, until the eruption was nearly removed, but the itching continued as before when the patient was awake.† It might prove useful in *Prurigo Pudendi Muliebris*.

691. *Rheumatism*. Some highly interesting cases of Rheumatism successfully treated with Cannabis are related by Dr. O'Shaughnessy. He observes that in several cases of *Acute and Chronic Rheumatism* half-grain doses of the resin had been given with unequivocal benefit; in all there was great alleviation of pain, increased appetite, and great mental cheerfulness. Mr. Donovan,‡ of Dublin, also relates many cases exhibiting the value of Cannabis in a most favourable light.

692. The other diseases in which it has been employed with varying success are *Insanity*, *Low Fevers*, *Hysteria*, *and Pulmonary Affections*. It may be, in these cases, occasionally substituted for Opium, over which it has the advantages of not decreasing the secretions, nor causing headache or subsequent constipation. In certainty of operation, however, it is greatly inferior to the salts of Morphia or Opium. *In Dropsical Affections*, the Tincture, in doses of gutt. xx. every four hours, proved effectual as a diuretic in the hands of Dr. Bryan.

693. CANTHARIS. Cantharis Vesicatoria. Cantharides. The Blister Beetle or Spanish Fly. A Coleopterous Insect, formerly known as Lytta, and Meloe Vesicatoria. It is collected in Russia, Sicily, and Hungary, and is also found in France, Germany, and other parts of Europe. It has its representatives in various parts of the world: thus the Mylabris Cichorii (*vern telini*) occurs in Syria and throughout the East; the Mylabris Trianthemæ and Lytta Gigas occur in Senegal; the Lytta Vittata in America; and the Lytta Ruficeps in Chili.

* Op. cit.
† Christison, op. cit.
‡ Op. cit.

Med. Prop. and Action. All the above species of Cantharis, Mylabris, and Meloe, when applied to the skin, are powerful irritants and vesicants; their irritant property depending upon the presence of an acrid crystallizable principle, *Cantharidine*, which is common to the whole family. Their value as external applications is considered in the article BLISTERS, part ii. Cantharidine is soluble in ether, strong acetic acid, and chloroform, and is the active ingredient in the various blistering fluids and blistering tissues which are used as substitutes for the ordinary blister plaster. Internally, Cantharides is only employed in the form of tincture, in doses of ♏x. cautiously increased to ♏xxx. daily, with the copious use of diluents and demulcents. Thus given, it is a stimulant diuretic, and appears to exercise a peculiar action over the mucous membrane of the genito-urinary system, and particularly on the neck of the bladder. From a series of carefully conducted experiments on twenty-two subjects, students, Dr. Giacomini* draws the conclusion that Cantharides is a powerful depressant, contra-stimulant, and antiphlogistic, and that it may be advantageously employed as such in acute inflammations. In every case (twenty-two) he found a remarkable diminution in the force and frequency of the pulse, and a great depression of the vital powers. Its antiphlogistic powers have been also tested by Borda, Rasori, and Larber. Cantharidine being rapidly soluble in oil, it is injudicious and unsafe to administer oleaginous substances at the same time as Cantharides, as the active principle may thus become freed, and, being absorbed into the system, may produce poisonous effects. In large or poisonous doses, it causes a burning pain in the throat and pit of the stomach, extending at length over the whole abdomen: excessive pain in swallowing; dryness of the fauces; copious discharge of blood or bloody mucus from the stomach, and in less quantity from the bowels; tenesmus; distressing strangury; bloody urine; priapism; and inflammation of the genital organs. The patient is restless, the breathing laborious, the pulse quick and hard; headache, delirium, and convulsions are sometimes superadded.

Offic. Prep. 1. Emplastrum Cantharidis (Cantharides in fine powder oz. xij.; Yellow Wax oz. viiss.; Prepared Suet oz. viijss.; Resin oz. iij.; Prepared Lard oz. vj.).

2. Emplastrum Calefaciens (composed of a Watery Infusion of Cantharides, Oil of Nutmeg, Yellow Wax, Resin, Soap Plaster, and Resin Plaster). Rubefacient and stimulant.

3. Linimentum Cantharidis (made by macerating oz. viij. of powdered Cantharides in fl. oz. iv. of Acetic Acid for twenty-four hours, and then percolating the mixture with Oj. of Ether till fl. oz. xx. are obtained). Employed for the purpose of blistering. One application is generally sufficient. It is much more effectual as a blistering agent than the Acetum Cantharidis (Pharm. Lond.). The latter, however, may be advantageously employed as a rubefacient. The Linimentum Cantharidis should be used with caution.

4. Tinctura Cantharidis (Cantharides in coarse powder oz. ½; Proof Spirit Oj.; prepared by maceration and percolation). Dose ♏v.—♏xxx.

5. Unguentum Cantharidis (Cantharides oz. j.; Yellow Wax oz. j.; Olive Oil fl. oz. vj.). An irritant dressing for blisters, issues, &c.

Occasional Symptoms. Salivation, vomiting of tenacious mucus, or apparently of the mucous membrane itself, redness of the eyes, lachrymation, and violent nausea.

Post-mortem appearances. Inflammation of the whole alimentary canal, and of the urinary and genital organs; the brain gorged with blood. The powder of Cantharides has been found in the stomach, nine months after death.

The smallest quantity of the Tincture which has proved fatal is fl. oz. j.; of the powder, 48 grains; in two doses of 24 grains each. Fatal effects have followed its external application to the skin, the active principle being absorbed into the system. (Dr. Guy.†)

Treatment of an over-dose. Copious diluents, vomiting by emetics, or warm liquids, emollient and opiate enemas, opiates by mouth, bleeding (local or general), and strict antiphlogistic diet.

* Med. Chir. Rev. No. lx. p. 603. † Forensic Medicine.

Therapeutic Uses. Diseases of the Genito-urinary system.

694. *In Amenorrhœa*, Dr. Dewees* places much confidence in the internal use of Tincture of Cantharides. He commences with a dose of gutt. xx., and gradually increases the quantity to gutt. xxxv. or xl. If it does not succeed in these doses, he does not consider that it will prove ultimately useful.

695. *In Leucorrhœa*, the internal use of Cantharides was first recommended in 1806, by Dr. Robertson,† of Edinburgh. He relates ten obstinate cases which yielded to its use. It was afterwards successfully employed by Dr. Dewees,‡ who speaks in the highest terms of its efficacy. He advises the Tincture to be persevered in, until it produces slight strangury, which he considers a favourable symptom, although the medicine must be discontinued when this is first observed. Dr. D. Davis§ was a strong advocate for the employment of Cantharides in Leucorrhœa. The following is a summary of his experience in the use of this remedy :—

1. Preparations of Cantharides have an undoubted remedial power, proving eventually perfectly curative of many varieties of Leucorrhœa.

2. They sometimes exert their remedial power without occasioning strangury or any other visceral disturbances; but they frequently give rise to these symptoms, which, however, are of a temporary nature, and completely yield to emulsions, mucilaginous drinks, fomentations, &c.

3. The Tincture is the best form: of this, 20 drops may be taken in a demulcent draught three times a-day at first; the dose may be subsequently increased to 40 or 50 drops, until it produce slight tingling of the parts, when it may be suspended, or the dose diminished.

4. The average period of cure is about four months; some yield in five or six months; in a few cases it exceeded a twelvemonth.

5. The general recovery has been rapid or tedious, as the malady has been of longer or shorter duration, before the commencement of treatment.

6. In a great number of cases, not only has the Leucorrhœa been removed, but the tone and functions of the uterine system have been greatly restored.

7. The administration of Cantharides is as safe during menstruation as at other times.

696. *In Incontinence of Urine* dependent on an atonic state of the bladder, the Tincture of Cantharides may often be given with excellent effect. It appears to act locally upon the urinary organs, stimulating the parts, and restoring to the bladder its healthy

* Diseases of Females, p. 122.
† Treat. on the Powers of Cantharides, 8vo. 1806.
‡ Op. cit. p. 75.
§ Obstetric Medicine, 2nd Ed. p. 281.

tone. In a case recorded by Dr. Roots,* he administered it in doses of ♏xv., every six hours, suspended in mucilage. Although a long standing case, a perfect cure was effected in a few days. *In Impotence*, it is occasionally employed as a stimulant of the generative organs. It is of doubtful efficacy.

697. *In Suppression of Urine*, Cantharides proved successful in the hands of Sir A. Cooper, and in the practice of others it has occasionally been useful; but the treatment is not devoid of danger, and it will often prove ineffectual. A large blister to the loins aids its internal exhibition.

698. *Other Diseases. In Albuminuria*, T. Cantharidis has been successfully employed by M. Monneret.† He commences with small doses, and gradually increases it to 60 drops. In the majority of cases its use was attended with decided benefit. Rayer also speaks favourably of it, but considers that it is an uncertain remedy, and one which may prove dangerous in the hands of the inexperienced. In five cases treated with it by Dr. Wells,‡ there was marked improvement in three, and in two it failed. Dr. Wells observed that it sometimes increased the coagulability of the urine. *In Granular Disease of the Kidney*, the Tincture (♏iv.—xij.) is favourably mentioned by Rayer and Dr. Copland.

699. *In Paraplegia*, Dr. Watson§ recommends the T. Cantharidis. It certainly has, he observes, sometimes a very beneficial effect. Generally when it does good, it acts as a diuretic; and Dr. Seymour suggests, that it is most likely to be useful in cases of serous effusions into the spinal cavity, or *Spinal Dropsy*. He recommends the Tincture as a good diuretic; and supposes that it benefits Paraplegia by tending to produce absorption of the serum effused within the vertebral canal.

700. *In Chronic Hooping Cough*, the following formula, proposed by Dr. Beatty, is stated by Dr. Graves‖ to be very efficacious in many instances:—℞ Infus. Cinchon. Co. f℥vj., T. Canthar., T. Opii āā f℥ss., M. sumat. coch. min. aut mag. ter in die. A similar formula was found very successful by Dr. Lettsom.

701. *In Scurvy*, Mr. Irven¶ strongly recommends T. Cantharidis. He commences with from 10 to 20 drops thrice daily, and gradually increases the dose until the patient takes 80 drops daily. Under its use he observed decided improvement.

702. *In Deafness* depending upon a thickened state of the membrana tympani, and where there is much irritation of the meatus externus, Mr. Toynbee** states, that he has seen great benefit follow the application of an ointment composed of ʒss. of

* St. Thomas's Hosp. Rep., No. iv.
† Gaz. des Hôpitaux, Oct. 13, 1842.
‡ Med. Chir. Rev., No. lxx. p. 467.
§ Lectures, vol. i. p. 547.
‖ Dub. Journ. of Med. Sciences, No. iv.
¶ Lancet, Dec. 30, 1842.
** Monthly Journal, March 1849.

Powdered Cantharides and ʒj. of Lard. It should be applied below and behind the ear twice daily; at the same time he advises alterative doses of Blue Pill, or some other mercurial.

703. *In Lepra and Psoriasis*, the internal exhibition of Cantharides has been in common use since the time of Dr. Mead,* in 1767. He used it with success, and others have found it occasionally beneficial. Cantharides, observes Dr. Schedel,† seems more useful when Psoriasis appears without evident cause, when it occurs among subjects of a soft and flabby constitution, when the eruption is very extensive, and when a course of purgatives has been had recourse to without advantage. The dietetic regimen should be severe. He advises the Tincture in doses of gutt. iij.—v. thrice daily, and the daily dose to be increased gutt. v. every six or eight days. It should be immediately discontinued if it disagree. Given thus, Dr. Schedel states that he has seen the greatest benefit from its use. *In Eczema*, its internal use with equal parts of T. Camph. cum Op. is advised by Mr. E. Wilson.

704. *To Chilblains*, the following liniment is spoken of as an excellent application by Mr. Wardrop‡ and Mr. Cooper:§—℞ T. Cantharid. fʒj., Liniment. Sapon. fʒvj., M. nocte maneque applicand.

705. *In Epilepsy*, the internal use of Cantharides is favourably mentioned by Dr. James Johnson.‖ It was much esteemed by some of the older physicians, but it does not appear to possess any great influence over the disease.

706. *In Passive Dropsy*, Cantharides is occasionally administered internally with the view of stimulating the action of the kidneys. Given with equal parts of Sp. Ether Nitrosi, I have seen benefit derived from its use. It is inadmissible in sthenic or acute cases.

707. *In Baldness and falling off of the Hair after debilitating Diseases*, the local application of T. Cantharidis is very serviceable. Mr. Acton¶ advises equal parts of the Tincture and Honey Water; but this creates too much irritation in the majority of cases; fʒj. of the Tincture to fʒj. of Oil well rubbed into the roots of the hair night and morning answers every purpose. Under its use the hair will cease to fall off, and the young hair will grow speedily.

708. *In obstinate Ulcers*, Mr. Tait,** late of the Madras Medical Service, speaks highly of the efficacy of T. Cantharidis, employed both internally and externally. He states that he found it par-

* Medical Works, 1767.
† Library of Medicine, vol. i.
‡ Med. Chir. Trans., vol. v. p. 142.
§ Lect. on Surgery, Med. Times, vol. xvii. 1848.
‖ On Derangements of the Liver, &c., p. 105.
¶ Lectures, Lancet, Jan. 17, 1846.
** Lancet, May 10, 1851.

ticularly successful in the treatment of Ulcers in the Tenasserim Provinces, where they are of a peculiarly obstinate character. Internally, he advises the following mixture:—℞ T. Canth. gutt. xij., Potas. Iod. ʒss., T. Cinchon. Co. fʒj., Aquæ fʒvij., M. sumat. fʒj. ter in die. Locally, he applies a lotion composed of T. Canthar. ♏xij., Acid. Nit. Dil. ♏xx., T. Cinchon. Co. fʒij., Aquæ fʒj., M. Under this treatment the most obstinate ulcerations were found to yield. It has been found particularly useful—1, where the granulations are exuberant, but pale, weak, and flabby; 2, where there is deficiency or total absence of granulation, the ulcers being deep and scooped out, with raised and indurated edges; 3, where the granulations are not defective, but cicatrizing irregularly, sometimes in the centre, at other times on one side; the lymph which was thrown out and organized one day being absorbed the next.

709. Capsicum Fastigiatum. (Annuum, *Linn.*) Common Capsicum. Guinea or Chili Pepper. *Nat. Ord.* Solanaceæ. *Linn. Syst.* Pentandria Monogynia. *Hab.* The Tropics generally. Imported from the Coast of Guinea and the East and West Indies.

Med. Prop. and Action. The berry or fruit (*off.*) is an acrid stimulant. In small medicinal doses it causes a sensation of warmth in the stomach, promotes the digestive process, and stimulates the genito-urinary organs. In excessive doses it is an irritant poison. Externally applied it is rubefacient. Its activity depends upon a volatile principle, *Capsicine*, which Pereira states is so powerful an irritant, that half a grain of it, volatilized in a large room, causes all who inspire it to cough and sneeze. Capsicum may be given internally in powder or in tincture. The tincture is a good adjunct to the Oil of Turpentine.

Offic. Prep. Tinctura Capsici (Capsicum bruised oz. ½; Rectified Spirit Oj.). Dose, ♏v.—♏xv.

Dose of powdered Capsicum, gr j.—gr. v.

It is contra-indicated—1, in most acute inflammatory states, particularly of the abdominal and genito-urinary viscera; 2, in acute fevers.

710. *Therapeutic Uses. In Scarlatina*, the following formula, originally proposed by Dr. Stephens,* has been used with much success, particularly in that form of the disease which occurs in the West Indies. Take two tablespoonfuls of Capsicum and two teaspoonfuls of salt; beat them into a paste, and add half a pint of boiling water. When cold, strain, and add half a pint of Vinegar. Of this mixture, the dose for an adult is one tablespoonful every four hours. The quantity is to be diminished for children, according to age or the severity of the attack. The same formula forms an excellent gargle in the sore throat which accompanies the disease.

711. *In Cynanche Maligna, or Putrid Sore Throat*, ♏xxx. of Tincture of Capsicum added to Oss. of Port Wine, forms an

* Med. Commentaries, vol. ii.

excellent stimulating gargle. It will produce as much effect thus employed as three times the quantity of Capsicum in a less stimulating vehicle.

712. *In Atonic Dyspepsia*, especially that occurring in hard drinkers, and in that of persons who have been long resident in hot climates, Capsicum is a very eligible stimulant and stomachic. The following pills may be employed with advantage, two being taken daily, an hour before dinner:—℞ Pulv. Capsici gr. ij.—iij., Pil. Rhei Co. gr. v., Pulv. Ipecac. Rad. gr. ½, M. ft. pil. ij.

713. *In Yellow Fever*, Dr. Wright* speaks in high terms of Capsicum, given internally, as a means of obviating the black vomit.

714. *In Delirium, in the Coma of Fever, in Apoplexy*, and in other cerebral affections, a Capsicum cataplasm to the feet is a powerful and excellent revulsive. If kept on too long, it will cause vesication. *In Delirium Tremens*, Mr. Ferneley† has successfully employed an infusion of Cayenne Pepper (ʒij. ad Aq. Ferv. Oj.; strain, and, when cool, add sugar and citric acid to suit the taste). He states that he has almost invariably found this (taken in divided doses) to be followed by more healthy perspiration, refreshing sleep, and subsidence of nervous excitement.

715. *In Diarrhœa arising from putrid matters in the Intestines, and especially when it is occasioned by fish*, Dr. Copland‡ regards Capsicum as almost a specific.

716. *In Hoarseness depending upon a relaxed or weakened condition of the Chordæ Vocales*, Dr. Graves§ advises a gargle composed of T. Capsici ʒj. and Decoct. Cinchonæ ʒvj., to be used five or six times a day. The quantity of T. Capsici may be gradually increased.

717. Carbazotic Acid. Acidum Carbazoticum. Picric Acid. Indigo Bitter. $C_{12}H_2(NO_4)_3O,HO$. Is obtained by the action of Nitric Acid on Indigo, and some other organic substances. It occurs in the form of bright yellow, shining scales, of a very bitter taste. It is soluble in water, uniting with salifiable bases, and forming compound salts.

Med. Prop. and Action. This Acid and its salts (Carbazotates) are tonic and astringent; but, according to Dr. Moffatt (who has been the first to introduce them as therapeutic agents), they act in the latter character indirectly, *i.e.*, they retain discharges by improving the general tone of the system. In doses of grs. v.—x. and xv. the Acid in the experiments of Prof. Rapp proved rapidly fatal to animals, convulsions and complete insensibility preceding death. One marked peculiarity attending the use of this Acid and its salts is the production of a more or less bright yellow tinge to the skin, eye, and other organs of the body. This phenomenon has been examined by Prof.

* Med. Facts and Obs., vol. vii. (P).
† Lancet, March 15, 1862.
‡ Dict. Pract. Med., vol. i. p. 523.
§ Clin. Lect., vol. ii. p. 2.

Crace Calvert and Dr. Moffatt,* who draw the following conclusions:—1. Under the use of the Acid and its salts patients become as yellow as if they had a severe attack of jaundice; not only the skin, but the conjunctiva becoming coloured. 2. The time necessary for this coloration varied from two to sixteen days, the average duration being seven days. 3. The quantity of Acid generally required to produce this coloration was about fifteen grains. 4. The coloration disappears in two or three days after the medicine has been discontinued. 5. The presence of this Acid could be detected in the urine during the whole period of coloration, but not otherwise. This coloration, according to Dr. Moffatt, may depend either upon a change in the colour of the serum of the blood, or upon some change produced in the biliary system, but he inclines to the former of these theories. For medicinal uses the salts are preferable to the Acid, and it is thought that in their action they approximate to Quinine.

The *dose* of Carbazotic Acid or of the Carbazotates of Ammonia, Iron, Zinc, or Nickel, is about one grain thrice daily.

718. *Therapeutic Uses. In a case of Continued Fever complicated with sub-acute Peritonitis and Tympanitis*, Dr. Moffatt prescribed the Acid in grain doses thrice daily; and the patient got well just as if Quinine had been administered. A case of *Chronic Eczema* recovered also under its use; but in a case of *Anæmia*, and in another of *Scarlatina Maligna*, in which it was employed, it was productive of little or no advantage. Two cases of *Cephalagia*, treated with the Carbazotate of Iron (gr. j. twice daily), recovered under its use. In both these cases, Quinine with Conium had previously failed. Two cases of *Diarrhœa*, one supervening on continued Fever, and the other, a chronic case of eighteen months' standing, yielded to the Carbazotate of Ammonia, in grain doses thrice daily (Moffatt).

719. CARBO ANIMALIS. Animal Charcoal, when intended for medicinal purposes, is best obtained by calcining leather scraps or blood with pearlash, washing and re-heating the same in a close crucible. By these means a very good pure charcoal is obtained, and was that employed by Dr. Garrod in his experiments (*infrà*). "Bone, Ivory, or Animal Black" contains only about 10 to 18 per cent. of Animal Charcoal.

CARBO ANIMALIS PURIFICATUS. Purified Animal Charcoal of the British Pharmacopœia is prepared by adding 16 oz. of Bone Black to 10 fl oz. of Hydrochloric Acid, diluted with 1 pint of Distilled Water and stirring occasionally. The mixture is digested at a moderate heat for two days, and agitated from time to time; the undissolved charcoal is then collected on a calico filter and washed with Distilled Water till what passes through gives scarcely any precipitate with Nitrate of Silver. The charcoal is then dried and heated to redness in a covered crucible. In this process the charcoal is freed from the phosphate and carbonate of lime and the sulphide of calcium.

* Association Med. Journal, Aug. 10, 1858, p. 742.

Med. Prop. and Action. Used in pharmacy as a decolorising agent. Like Wood Charcoal, it may be employed as a deodorizer and antiseptic. *As an antidote in poisoning by certain vegetable substances, the alkaloids, &c.*, it was first proposed by Dr. Garrod.* The results of his experiments, and those of Wapen, Graham, and Chevalier Rand, may be summed up in the following articles:—

1. Animal charcoal is capable of removing from their solutions, in some cases only by the aid of heat, the bitter, resinous, and active principles of Quassia, and the other simple bitters; of Colocynth, Aloes, and other purgatives; of Krameria, and other astringents; of Guaiacum, Cinchona, Opium, Nux Vomica; and, in short, all vegetable substances submitted to its influence.

2. That it precipitates from their solutions a large number of oxides. The acid salts, Arsenious acid, the Arsenites of Potassa and Soda, the acid nitrate of Mercury, the cyanide and ferrocyanide of Potassium, are exempt from its action.

3. That it has the power of combining in the stomach with the poisonous principles of animal and vegetable substances, and that the compounds thus produced are innoxious; therefore, when given before these poisons have become absorbed, it will act as an antidote.

4. That a certain amount of Animal Charcoal is required, about ʒss. to each grain of Morphia, Strychnia, or any other alkaloid; but of course much less for the substances from which they are obtained, as Opium, Nux Vomica, &c. Gr. xx. of Nux Vomica requires about ʒss of Charcoal.

5. That the antidote itself exerts no injurious action on the body.

6. That when given as an antidote, it should be mixed with water as hot as the patient can swallow, as its action is much aided by an elevated temperature.†

Dr. Taylor‡ and Dr. Pereira§ agree in regarding the experiments adduced as inconclusive. They admit that it is certainly capable of acting mechanically, and thereby impeding the action of poisons; but beyond this they deny its antidotal power. The weight of evidence is decidedly in favour of its efficacy, and it should never be neglected when opportunity offers of testing its real value.

720. CARBO LIGNI. Wood Charcoal. Wood charred by exposure to a red heat without access of air.

Med. Prop. and Action. Antiseptic, disinfectant, and deodorising. In a minor degree it appears to be tonic and febrifuge. When taken internally, it is said to be absorbed into the system; Prof. Oesterlen‖ stated that he discovered it in the blood of the mesenteric veins and the vena porta, and in the liver and the lungs of animals which had been fed on food containing it. The surface of the intestinal canal was found perfectly healthy. Eberhard also believed that he had detected its presence in various parts of the body; but M. Mialhe failed to discover it. It is much used as a toothpowder, and is thought to check caries of the teeth. Externally, mixed with Linseed Meal, it forms an excellent poultice in gangrenous and foul ulcers.

Offic. Prep. Cataplasma Carbonis. Charcoal Poultice. (Wood Charcoal in powder oz. ss.; Bread oz. ij.; Linseed Meal oz. iss.; Boiling Water fl. oz. x. Half the Charcoal to be mixed in the poultice, the remainder to be sprinkled on the surface.)

Dose of Wood Charcoal, gr. x.—gr. lx. or more.

* Pharm. Journal, vol. v. p. 325, 1846.

† See an interesting summary in Ranking's Half-Yearly Abstract, vol. xiii. 1851, p. 360.

‡ On Poisons, p. 84.

§ Mat. Med., vol. i. p. 326.

‖ Constatt's Journal, band i. p. 27, 1848.

721. *Therapeutic Uses.* · *In Dyspepsia attended with obstinate Constipation and Gastrodynia*, Charcoal was formerly much employed, but it fell into disuse. In 1849, M. Belloc* again called attention to its efficacy; he found it successful in many instances, when Bismuth, Iron, and Lead had failed. He also found it speedily remove the Gastrodynia, and insure a regular action of the bowels. He advises a dessert-spoonful after each meal. Charcoal lozenges have become of late a popular remedy in dyspepsia, flatulence, fetid breath, &c.

722. *In Dysentery*, Dr. Chapman† (U.S.) found Charcoal, internally administered, entirely removed the acrid and offensive character of the stools. It is also advised by Jackson and Crawford, in ʒj. doses. In the *Diarrhœa of Measles*, Dr. Wilson‡ used common Wood Charcoal with advantage. He also speaks of its efficacy in Cholera.

723. *In Intermittent Fevers*, Dr. Calagno,§ an Italian physician, first called attention to the efficacy of Charcoal, and advised it as a substitute for Cinchona. He gave it in doses of ℈j.—ʒj. three or four times daily. Dr. Calvert,‖ physician to the British forces at Palermo, also employed it with success. He states that it appears especially useful where a marked disturbance of the digestive organs, nausea, flatulence, and diarrhœa are present. It is best given combined with Rhubarb.

724. *To Foul and Gangrenous Ulcerations*, a Charcoal poultice (a common Linseed poultice to which Charcoal is added) is highly serviceable in correcting the fetor of the discharge, and in arresting the progress of the ulceration. *In Gangrene and Phagedæna* it is a valuable application. The many valuable purposes to which Charcoal may be applied as a disinfectant have been fully pointed out by Dr. Stenhouse,¶ Dr. J. Bird, and others.

725. CARBOLIC ACID. Acidum Carbolicum. Phenol. Phenylic or Phenic Acid. $C_{12}H_5O,HO$. One of the products obtained by the distillation of Coal Tar. Impure Carbolic Acid occurs as a light oily fluid. The pure Acid forms a colourless deliquescent crystalline mass, which fuses at 95°, and passes into vapour at 370°. It has a smoky odour and an acrid taste. It is freely soluble in Alcohol, Ether, and Glycerine; but 100 parts of Water dissolve only 3 parts of the Acid.

Med. Prop. and Action. Escharotic, stimulant, rubefacient, and antiseptic. When given internally, it resembles Creasote in its power of allaying some forms of vomiting and gastric irritability. Its powers as a disinfecting and

* Rev. Méd. Chir., Feb. 1848.
† Elements of Therapeutics, 1825.
‡ Ranking's Abstract, 1857, vol. xxv. p. 23.
§ Lond. Med. Rep., vol. iii. p. 7.
‖ Ed. Med. and Surg. Journal, vol. x.
¶ Ranking's Abstract, vol. xxi., p. 1, et seq.

deodorizing agent are said to be very marked. A very small quantity added to stinking urine or fetid evacuations rapidly and completely removes all smell. Its antiseptic powers are no less striking. If it be added in very small proportion to freshly voided urine, it will keep it for many months in an unchanged state. In fact, it has a specific action upon all organic and inorganic matter, and preserves it from putrefaction or decay. In addition to its deodorizing and antiseptic properties, it acts when locally applied as an escharotic, or diluted as a stimulant. Internally it may be given in doses of a teaspoonful of the aqueous solution (one part to forty of water) in a tumblerful of water. Externally, the aqueous solution may be employed as a local stimulant; or, if it be desirable to use it in a less diluted state, short of its full action as an escharotic, gr. cxx. of pure Carbolic Acid may be mixed in fl. drm. j. of Liquor Potassæ and Oss. of water. Or it may be used in the form of ointment (gr. v.—gr. xxx. of Carbolic Acid to Ung. Cet. oz. j.).

Dose, fl. drm. ss. to fl. drm. j. of a solution containing 1 part of the Acid to 40 of water, or ♏j. of the deliquesced Acid in the form of pill.

726. *Therapeutic Uses.* Dr. Godfrey * has found the internal use of Carbolic Acid of great service in cases of *Gastric Irritability*, especially when produced by miasma or sewerage exhalations. He has also seen much benefit from its use in the *Vomiting of Pregnancy*. It is a valuable remedy in the *Flatulence of Old Age*, depending upon imperfect digestion, and in *Diarrhœa* resulting from bad drainage. Dr. Godfrey anticipates much good from it in the treatment of *Cholera*.

727. *In Relaxation of the Mucous Surfaces*, Mr. T. Turner,† of Manchester, recommends that a solution of Carbolic Acid in Glycerine be applied by means of a brush or sponge. Its use is indicated in *Nasal Polypi*, *Ozæna*, and in all *putrid discharges from the mouth, throat, nostrils, ears, rectum, and vagina.*

728. *In Stomatitis, Aphthæ, Diphtheria, and Ulcerated Sore Throat*, the aqueous solution may be used as a gargle. Mr. Turner recommends that the Acid dissolved in Glycerine be applied topically by means of a sponge, in *Diphtheria*. Care must be taken that the sponge-mop be not saturated, lest a drop should fall into the larynx. The escharotic effect is confined to the surface to which it is applied, and does not spread to the contiguous parts.

729. *In Ill-conditioned Ulcers, Sloughing Wounds, Carbuncle, and Cancerous Ulcerations*, Carbolic Acid, in different degrees of solution, according to the character of the sore, may be applied. In Cancer it may be used with great advantage. Five grains of the Acid added to oz. j. of Ung. Zinci, and applied night and morning, has the effect of removing all unpleasant odour. Applied in the same form, it cures *Fetid Perspirations of the Feet and Arm-pits*.

730. *In Sinuses connected with Carious Bone and Fistulæ*, Mr. Turner has employed it with great success. He applies the Acid

* Medical Circular, Dec. 17, 1862.

† Paper by Dr. C. Calvert, Lancet, Sept. 26, 1863.

dissolved in Glycerine and smeared on a catgut or wax bougie, taking care to carry it to the bottom of the fistula. It will not succeed in anal fistulæ where there is a communication with the gut. The solution may be injected into sinuses leading to diseased bone; it destroys fetor, and promotes the exfoliation of the necrosed portion.

731. Applied to *Hæmorrhoids*, Carbolic Acid corrugates and obliterates the sac. It coagulates the contents of the pile, which may be squeezed out; the two surfaces then come into contact, and the sac becomes obliterated.

732. *In Scabies*, the application of Carbolic Acid in the form of ointment soon effects a cure. It is preferable to Sulphur Ointment, as it does not irritate the skin. It destroys *Pediculi* of all kinds in one application. A small quantity of a strong solution of the Acid well rubbed into the hair, and after a quarter of an hour washed out again with soap and water, will kill every insect.

733. *In Lupus*, the solution of the Acid in Glycerine has been successfully employed by Mr. De Morgan. Dr. Whitehead treats the same disease with Carbolic Acid Ointment (ʒss.—ʒj.). Mr. O. Clayton has found benefit from the use of the aqueous solution in *Lepra*, *Tinea Capitis*, *Rupia*, &c.

734. Carbonic Acid. Acidum Carbonicum. CO_2. Fixed Air. Aërial Acid. Spiritus Lethialis of the ancients. Is at ordinary temperatures a gas. By pressure it is condensed into a liquid, and by intense cold it is solidified. Sp. gr. 1·5245. Eq. Wt. 22. It exists extensively both in the organic and inorganic kingdoms.

Med. Prop. and Action. The pure gas when inhaled acts as an irritant, causing spasmodic contraction of the glottis and consequent asphyxia. On mixing the gas with about twice its volume of air, Sir H. Davy found that he could breathe it, though it soon produced vertigo and somnolency. The first symptom usually experienced on breathing an atmosphere containing Carbonic Acid gas is throbbing headache, with a fulness and tightness across the temples, giddiness, loss of muscular power, a sensation of tightness at the chest, increased action of the heart, and often palpitations; the ideas become confused, and memory partially fails. Buzzing in the ears, impaired vision, and a strong tendency to sleep succeed, or syncope ensues. Convulsions, sometimes accompanied with delirium, foaming at the mouth, and vomiting, precede death. Dissection shows engorgements of the cerebral vessels, and sometimes serous or even sanguineous effusions. The treatment of poisoning by this gas is free exposure to the air; artificial respiration by the Marshall Hall or Sylvester methods; galvanism of the phrenic nerve; cold affusion; moderate blood-letting, especially by cupping at the nape of the neck; and the employment of stimulants, either given internally, or applied externally in the form of frictions. *As an anæsthetic*, its properties have been examined by M. Herpin.* He states that the gas, when diluted with 80 or 90 per cent. of air, causes none of the toxic effects of the pure gas, but produces gradual anæsthesia, without any signs of suffocation, without pain or any apparent disturbance of the system; its action, he considers, is chiefly directed on the brain and nervous system. He considers that it is particularly adapted for

* Ann. de Thérap., 1859, p. 59.

maintaining an anæsthesia previously induced by Chloroform, as its action may be kept up for an almost indefinite period without danger to the patient. As a local anæsthetic, it will be considered more fully presently. When taken into the stomach in small quantities, in the form of an effervescing draught, this gas checks nausea and allays gastric irritability. Water charged with it is a good vehicle for the exhibition of many saline remedies. Locally applied to ulcerated surfaces, its primary action is that of a stimulant.

735. *Therapeutic Uses.* *In Phthisis*, the inhalation of Carbonic Acid was first employed by Dr. Percival, in 1774. He found it palliate the febrile symptoms; and this result was confirmed by the observations of Drs. Hulme, Withering, and Beddoes. It has more recently been employed by the Russian physicians to arrest the progress of Phthisis; and their views are supported by the observation of Guillot,* that the deposit of carbonaceous matter in the lungs operates as a check to the further deposit of tuberculous matter. Girtanner, however, found it produce only momentary relief; and in the hands of Muhry it entirely failed.†

736. *In Gastric Irritability, Nausea, and Vomiting*, Carbonic Acid given in the form of an effervescing draught has a most soothing and sedative effect. If acidity of the stomach exist, the draught may contain an excess of alkali. It is very useful in the *gastric irritability of fever*.

737. *In Calculous Disease*, when the urine contains a white or phosphatic deposit, Carbonic Acid water (bottled soda-water, or water aërated in a gasogene apparatus) may be given with advantage. *In Irritability of the Bladder*, Dr. Churchill‡ found the local application of this gas of great service. It may be used as advised in the next section.

738. *In Painful Affections of the Uterus*, the local application of this gas, by its local anæsthetic action, often exercises the most beneficial effect. Its value in *Cancer of the Uterus* was first pointed out by Dr. Dewees;§ and in 1840, Dr. Clutterbuck‖ employed it with success in allaying *great irritability of that organ*. Prof. Simpson¶ has recently brought the subject prominently forward, pronouncing it, in these cases, a good and powerful local anæsthetic. He directs a tablespoonful of crystallized Tartaric Acid, mixed with a tablespoonful of crystallized Bicarbonate of Soda, to be put into an ordinary wine-bottle, and three or four wine-glassfuls of water to be added: the gas which is evolved is to be carried off through a caoutchouc tube, and applied to the womb by means of a gum elastic nozzle attached to the extremity of the tube. The first evolution of gas within the vagina is attended with a slight feeling of heat; but this is soon followed by a soothing effect. In addition to its local anæsthetic property, the gas is one of the best local applications which can be made to an ulcerated surface. If the Acid fail to afford relief, a teaspoonful

* Encyclograph Med., Dec. 1848.
† Hufeland's Journ., i. p. 197, and ii. p. 60.
‡ Dublin Quart. Journ. of Med., Aug. 1857.
§ On Diseases of Females, p. 269.
‖ Lancet. Oct. 10, 1840.
¶ Edin. Med. Journ., July 1856.

of Chloroform may be added to the contents of the bottle before introducing the cork. For the relief of uterine pains, perhaps no measure is so productive of relief. *As a means of inducing premature labour*, the use of the Carbonic Acid douche has proved effectual in the hands of Prof. Simpson,* Scanzoni,† and others. *In Dysmenorrhœa*, Prof. Mojon‡ found Carbonic Acid fumes of the greatest service.

739. *In Tic Douloureux, Sciatica, and other Neuralgic Affections, in Atonic Rheumatism and Gout*, the local application of Carbonic Acid baths, and especially of the douche, has been productive of great benefit.

740. *In Dysentery and Ulceration of the Rectum*, Dr. Parkin § strongly advocates the introduction of Carbonic Acid gas per anum. It may be introduced in the manner advised in Uterine affections (*ante*). *In Cholera*, the value of this gas (obtained by a mixture of Sodæ Bicarb. and vegetable acids) has been strongly insisted upon by Dr. Parkin and others; but further facts are wanting to prove its efficacy. It has also been proposed as a prophylactic.

741. *In Chronic Ophthalmia*, a stream of this gas directed on the eyes appears to be serviceable. Dr. Pereira ‖ mentions a case of *Scrofulous Ophthalmia* which recovered under its use when ordinary means had failed. *In Ciliary Neuralgia* and *Blepharospasmos*, Dr. Jüngken found the douche of cold water impregnated with this gas an effectual remedy. It should be applied twice daily, for half an hour at a time.

742. *In Cancerous and other painful Ulcerations*, the local application of Carbonic Acid gas has been commended by Peyville, Dr. Ewart, of Bath, and others; but according to Dr. Walshe,¶ the amelioration afforded by it is only temporary. It may be applied directly in the gaseous state, or in solution, or through the medium of a fermenting poultice.

743. CARBONII BISULPHURETUM. Bisulphuret of Carbon. Bisulphide of Carbon. Sulpho-Carbonic Acid. Carburet of Sulphur. CS_2. A limpid, colourless, extremely volatile fluid. A compound of Carbon 15·79, Sulphur 84·21, in 100 parts; or, 1 Atom = 6 of Carbon and 2 Atoms = 32 of Sulphur. Eq. Wt. 38.

Med. Prop. and Action. In doses of gutt. ij.—vj., in mucilage, or on sugar, it is stated to be stimulant, diaphoretic, and emmenagogue. Externally, in the form of embrocation (one part of the Bisulphuret and two of oil), it is stimulant. The vapour, if inhaled, is anæsthetic. Prof. Simpson** exhibited it in about twenty cases, and states that it is certainly a very rapid and

* Op. cit.
† Brit. and For. Med. Chir. Rev., Oct. 1856.
‡ Med. Chir. Rev., No. lxvi., p. 554.
§ Med. Gaz., vol. xiii. p. 777.
‖ Mat. Med., i. p. 333.
¶ On Cancer, p. 215.
** Pharm. Journal, vol. vii. p. 517.

powerful anæsthetic. One or two of the patients stated that they found it more pleasant than Chloroform; but, in the majority, it produced distressing and disagreeable visions, and was followed for some hours by headache and giddiness, even when given only in small doses Dr. Snow* also made some experiments with it, and considers that a single deep inspiration of air saturated with its vapour, would produce instant death. On the whole, it appears very inferior, in uniformity of action and safety, to Chloroform. Its smell, that of decaying vegetable matter, is a great objection to its use. (Pereira.)

744. CARDAMINE PRATENSIS. Cuckoo Flower. *Nat. Ord.* Cruciferæ. *Linn. Syst.* Tetradynamia Siliculosa. *Hab.* Europe, England.

Med. Prop. and Action. Stimulant and tonic.

Dose of the dried flower, gr. cxx.—gr. clxxx.

Therapeutic Uses. Spasmodic Diseases. Sir G. Baker† has published two cases of *Chorea*, one of *Spasmodic Asthma*, one of *Hemiplegia*, and one of *Spasmodic Affection of the lower extremities*, in which the flowers of the Cardamine apparently effected a cure. Not much reliance is to be placed on their efficacy. They are rarely employed.

745. CARDAMOMI SEMINA. The seeds of Elettaria Cardamomum. The Malabar or officinal Cardamom. *Nat. Ord.* Zingiberaceæ. *Linn. Syst.* Monandria Monogynia. *Hab.* Malabar, Southern India, and Cochin.

Med. Prop. and Action. Cardamoms are aromatic and carminative, without acridity. They are seldom given alone, but are an excellent adjunct to other remedies. Their activity depends upon a volatile oil. The best form for internal use is the Compound Tincture. The seeds of Elettaria Major, and other species of Cardamoms, have similar medicinal properties.

Offic. Prep. 1. Pulvis Aromaticus (see Cinnamomum).

2. Tinctura Cardamomi Composita (Cardamoms bruised oz. ½; Caraway bruised oz. ½; Raisins oz. ij.; Cinnamon bruised oz. ss.; Powdered Cochineal grs. lx.; Proof Spirit Oj. Prepared by maceration and percolation). Dose, fl. drm. ss.—fl. drs. ij.

Dose of powdered seeds, gr. v.—gr. xx.

746. *Therapeutic Uses. In the flatulent Colic of Children, in Dyspeptic Affections of old persons, in the low stages of Fever, and in Atonic states generally*, Cardamoms in the form of compound Tincture (*ut supra*) prove highly serviceable.

747. CARUM CARUI. Common Caraway. *Nat. Ord.* Umbelliferæ. *Linn. Syst.* Pentandria Digynia. *Hab.* S. Europe, cultivated in England.

Med. Prop. and Action. Caraway seeds are stomachic and carminative. The volatile oil which they contain (Ol. Carui) is the best form for internal use.

* Lond. Med. Journal, June 23, 1848.

† Medical Trans. of College of Physicians, vol. i. p. 442.

They are chiefly used as an adjunct to other remedies. Aqua Carui is an ordinary vehicle for saline purgatives.

Offic. Prep. 1. Aqua Carui (Caraway bruised oz. xx.; Water Cij.; distil Cj.). Dose, fl. oz. j.—fl. oz. iij.

2. Oleum Carui. Oil of Caraway (obtained from Caraway by distillation). Dose, ♏ij.—♏vj.

Dose of Caraway, gr. x.—gr. lx.

748. *Therapeutic Uses. In Flatulence, Flatulent Colic, Atonic Dyspepsia,* and *Spasmodic Affections of the Bowels,* Ol. Carui, in doses of gutt. ij.—vj. on sugar, is often productive of benefit. Aq. Carui is often given as a carminative in the flatulent colic of children.

749. CARVACROL. An oily liquid, very similar in appearance to Creasote, with a strong, unpleasant smell, and a hot, pungent taste. $C_{26}H_{18}O_2 = HO,C_{26}H_{17}O$. It is formed by the action of Potassa, Iodine, or Hydrated Phosphoric Acid, upon Oleum Carui, Oleum Thymi, and, according to Claus, by the action of Iodine on Camphor. Schweitzer has shown that the product from Camphor is the same as that obtained from Ol. Carui.

Therapeutic Uses. Not well ascertained.

750. *In Toothache,* Dr. Bushman* states that it is more efficacious than Creasote. It should be applied on a piece of cotton to the decayed or painful tooth, and is stated to afford immediate relief.

751. CARYOPHYLLUS AROMATICUS. (Eugenia Caryophyllata.) The Clove Tree. *Nat. Ord.* Myrtaceæ. *Linn. Syst.* Icosandria Monogynia. *Hab.* East and West Indies. Cultivated in Penang, Bencoolen, and Amboyna.

Med. Prop. and Action. The dried unexpanded flower-buds (*off.*) of the Clove Tree, commonly called Cloves, are aromatic and stimulant. Their activity depends upon a volatile oil (Ol. Caryoph.), which is the best form for internal use. It is an excellent adjunct to other medicines, and enters into a great number of officinal preparations.

Offic. Prep. 1. Infusum Caryophylli (Cloves bruised oz. ½; Boiling Distilled Water fl. oz. x.; infuse for half an hour and strain). Dose, fl. oz. j.—fl. oz. ij.

2. Pulvis Aromaticus (see Cinnamomum).

3. Oleum Caryophylli. Oil of Cloves (obtained from Cloves by distillation). Dose, ♏ij.—♏vj.

Dose of Powdered Cloves, gr. v.—gr. xx., or more.

Incompatibles. Infusion of Cloves is incompatible with the Salts of Iron, Zinc, Lead, Silver, and Antimony.

752. *Therapeutic Uses. In Atonic Dyspepsia,* with a languid state of the circulation, and a sense of coldness in the stomach, the Infusion of Cloves (fl. oz. iss.), or the Volatile Oil (gutt. iij.—v.),

* Med. Times, vol. xvii. p. 236.

is occasionally given with benefit. When much flatulence is present, it is particularly useful.

753. *In the Vomiting of Pregnancy*, when the system is not excited to febrile action, and when the stomach rejects almost everything as soon as swallowed, Dr. Dewees * states that he has found a tablespoonful of the Infusion of Cloves act most promptly and successfully.

754. *In Toothache*, a drop or two of Oil of Cloves introduced into a carious tooth, is a popular remedy which occasionally affords relief.

755. CASCARILLA. Cascarillæ Cortex. The Bark of Croton Eleuteria (not the Croton Cascarilla,† as formerly supposed). *Nat. Ord.* Euphorbiaceæ. *Linn. Syst.* Monœcia Monadelphia. *Source.* The Bahama Islands.

Med. Prop. and Action. Aromatic, bitter, and tonic. It is best given in infusion, in doses of fl. oz. iss., or in Tincture, in doses of fl. drm. ss.—fl. drs. iss. It is a mild carminative, and has the advantage over other medicines of the same class of not causing constipation. It will often be retained when the stomach is unable to bear the stronger tonics. Its activity depends upon a volatile oil, and a peculiar crystalline principle, *Cascarilline.*

Offic. Prep. 1. Infusum Cascarillæ (Cascarilla in coarse powder oz. j.; Boiling Distilled Water fl. oz. x. Infuse one hour and strain). Dose, fl. oz. j.—fl. oz. ij.

2. Tinctura Cascarillæ (Cascarilla bruised oz. iiss.; Proof Sp. Oj. Prepared by maceration and percolation). Dose, fl. drm. ss.—fl. drs. iss.

Dose of Cascarilla in powder, gr. x.—gr. xxx.

Incompatibles. The preparations of Cascarilla are decomposed by the Salts of Iron, Zinc, Lead, Silver, and Antimony.

756. *Therapeutic Uses. In Atonic Dyspepsia* and in *Debility* from whatever cause, particularly in that occurring after Fever, the Infusion of Cascarilla is particularly indicated, and is productive of much benefit.

757. *In the advanced stages of Diarrhœa and Dysentery*, it is highly thought of by the Germans; but its virtues in these cases are little known in England.

758. *In Intermittent and Remittent Fevers*, Cascarilla was formerly held in high esteem, particularly in Germany. Stisser, Stahleaus, and others, considered it a perfect substitute for Cinchona. Its inferiority to that bark is now universally admitted, to which, however, it is an excellent adjunct, rendering it, by its aromatic qualities, more agreeable to the stomach, and increasing its febrifuge powers. (A. T. Thompson.)

759. *In Bronchial Affections attended with excessive secretion of Mucus*, a combination of Infus. Cascarill. fl. oz. iv., Acet. Scillæ (Ph. Lond.) fl. drs. ij., Tinct. Camph. cum Opio fl. drs. ij., in doses of fl. oz. j. thrice daily, may be given with advantage.

* On Diseases of Females, p. 211.

† This tree yields the Copalchi Bark.

760. *In Gangrenous Thrush of Children*, its internal use is advised by Dr. Underwood.*

761. Cassia Alata. (Duod-murden, *Hind.*) *Nat. Ord.* Cæsalpineæ. A native of India, where it is much esteemed by the natives as a general tonic, and also as a remedy for the bites of poisonous snakes.

762. *Therapeutic Uses.* *In Ringworm*, the fresh leaves, bruised and mixed with lime-juice, are deemed a powerful specific. Dr. O'Shaughnessy states that he has often employed it with decided advantage. The Beng. Ph. directs an ointment composed of equal parts of the bruised leaves and simple cerate.

763. Cassia Fistula. Cathartocarpus Fistula. Purging Cassia. *Nat. Ord.* Cæsalpineæ. *Linn. Syst.* Decandria Monogynia. *Hab.* East and West Indies, Egypt, &c.

Med. Prop. and Action. The pulp of the pods (*off.*) is laxative, and in larger doses cathartic. If given alone it creates much griping, nausea, and flatulence; to prevent which it should be combined with a carminative or a neutral salt. The Confection (Ph. Lond.) is a convenient form for administration (Cassia Pulp lbss., Manna ʒij., Tamarind Pulp ʒj., Syrup of Roses f ʒviij.). Dose, ʒij.—ʒj. The seeds and the leaves are also aperient. The pulp enters into the composition of several electuaries.

Offic. Prep. Confectio Sennæ (see Senna).

Dose of Cassia pulp, as a laxative, gr. lx.—gr. cxx.; as a cathartic, gr. cxx.—oz. ss.

Therapeutic Uses. Very limited, similar to those of Senna.

Cassiæ Cortex. See Laurus Cassia.

764. Castoreum. Castor. The dried Præputial Follicles and their secretion of Castor Fiber, the Common Beaver, an animal belonging to the order Rodentia. There are two kinds of Castor met with in commerce, the Russian and the Canadian; the former is the more highly esteemed, but the latter is the only one now met with in English commerce. It is obtained from the Hudson's Bay Territory.

Med. Prop. and Action. Mild, stimulant, and anti-spasmodic. The best form is the Ammoniated Tincture (Pharm. Edin.) (Castor ʒiiss., Assafœtida ʒx., Spirit of Ammonia Oij., strain and filter), in doses of ʒj.—ʒij. From its frequent adulteration, it has lost much of its standing as an anti-spasmodic; but, when pure, it appears to be a remedy of considerable power. When taken, even in moderate doses, it is absorbed into the system, and communicates its peculiar odour, slightly altered, to the urine. It contains a Volatile Oil and a crystalline principle, *Castorin;* but very little of the latter is obtained from American Castor. It was formerly regarded as emmenagogue.

Offic. Prep. Tinctura Castorei (Castor oz. j.; Rect. Sp. Oj.; prepared by maceration). Dose, ɱxx.—fl. drm. iss.

Dose of Castor, gr. v.—gr. xx in pills.

* Diseases of Children, p. 79.

765. *Therapeutic Uses. In Hysterical, Nervous, and Spasmodic Affections*, Castor, particularly in the form of the Ammoniated Tincture (*ut supra*), is a very valuable remedy, and one too much neglected at the present day. It may also be advantageously combined with Aloes or the Tincture of Valerian. M. Trousseau speaks highly of its efficacy in this class of cases. Dr. Joy* gives two excellent formulæ for its use:—℞ Castorei ℈j., Ammon. Carb. gr. v., Syr. q. s. ft. bolus. ℞ T. Castor. ʒj., Ether. Sulphur. ♏xx., T. Opii ♏viij., Aq. Cinnam. ʒiss., ft. haust. ter quotidie sumend. *In Epilepsy*, its use is as old as Celsus, who recommends its employment. *Dysmenorrhœa*, attendant upon the expulsion of menstrual coagula, may often, according to M. Vannaire,† be relieved by large doses of Castor.

766. *In Spasmodic Asthma*, Dr. Graves‡ states that he has often derived decided advantage from a combination of equal parts of T. Castor. and Vin. Ipecacuanhæ. During the paroxysm, he also found much benefit result from the application to the chest of a flannel steeped in water as hot as the patient can bear. It was formerly esteemed in *Hooping Cough*.

767. *In Intermittent Fevers*, particularly in Quartans, Castor, in combination with Myrrh, is spoken of by Sennertus as a specific.§

768. Catechu. Gum Catechu. An extract obtained chiefly from Acacia Catechu, but also from Areca Catechu, Butea Frondosa, Uncaria Gambir, and other trees. Two varieties have a place in the British Pharmacopœia.

Catechu Nigrum. Black Catechu. Cutch. An extract of the heart-wood of Acacia Catechu. *Nat. Ord.* Mimosæ. *Linn. Syst.* Polygamia Monœcia. *Source.* Pegu, various parts of the East Indies.

Catechu Pallidum. Pale Catechu. Terra Japonica. An extract of the leaves and young shoots of Uncaria Gambir. *Nat. Ord.* Cinchonaceæ. *Linn. Syst.* Pentandria Monogynia. *Source.* Singapore and the Eastern Archipelago.

Med. Prop. and Action. Powerful astringent. Of the two varieties met with in commerce, the pale and the dark, the latter is to be preferred, as it contains a larger proportion of Mimotannic Acid and Catechin, upon the presence of which principles its astringent property depends. The dark kind averages 109 of Tannin (Mimotannic Acid and Catechin), the pale 97, in 200 parts. It is one of the most powerful and certain of the vegetable astringents, and may be advantageously combined with carminatives and chalk mixture. Alkaline salts are said to destroy its astringency.

* Lib. of Med., vol. v.
† Braithwaite's Retrospect, xlv., 1862, p. 278.
‡ Clinical Lectures, vol. ii. p. 87.
§ De Febribus, lib. ii. cap. 20.

Offic. Prep. 1. Infusum Catechu (Catechu in coarse powder grs. clx. ; Cinnamon bruised grs. xxx. ; Boiling Distilled Water fl. oz. x.). Infuse for half an hour. Dose, fl. oz. j.—fl. oz. ij.

2. Pulvis Catechu Compositus (Catechu oz. iv. ; Kino oz. ij. ; Rhatany oz. ij. ; Cinnamon oz. j. ; Nutmeg oz. j.). Dose, gr. xx.—gr. xl.

3. Tinctura Catechu (Catechu in coarse powder oz. iiss. ; Cinnamon bruised oz. j. ; Proof Spirit Oj. Prepared by maceration and percolation). Dose, fl. drm. j.—fl. drs. ij.

4. Trochisci Catechu (Pale Catechu in powder oz. ij. ; Refined Sugar lb. j. ; Gum Arabic oz. j. ; Tincture of Capsicum fl. oz. ss. ; Distilled Water a sufficiency. Divided into 720 lozenges). Each lozenge contains about 1¼ grains of Catechu.

Dose of powdered Catechu, gr. x.—gr. xxx.

Incompatibles. Morphia, most metallic salts, Lime Water, Barium, Alum, Nitrate of Potash, Sulphate of Magnesia, Isinglass, Albumen, Ipecacuanha, and Emetine.

769. *Therapeutic Uses. In Diarrhœa depending upon a relaxed or atonic state of the mucous membranes of the Intestinal Canal*, Catechu, in doses of gr. x.—xv. of the powder, or fl. oz. j.—fl. oz. ij. of the Infusion, may be given with the greatest benefit. It is best given in combination with Opium and chalk mixture. Great care is necessary to ascertain clearly that the diarrhœa is not dependent upon, nor accompanied by inflammatory action, in which case this, as well as all other astringents, are not only useless but injurious. The same remark applies to diarrhœa arising from deranged biliary action. The absence of pain on pressure, the state of the skin, pulse, and eye, the history of the case, together with a careful examination of the fæces, will generally indicate those cases in which Catechu is admissible.

770. *To Sore and Chapped Nipples*, the local application of the Tincture of Catechu was first recommended by Mr. Farr.* In most cases it is very efficacious. The nipple is to be washed in warm water, then dried, and the Tincture applied with a camel's-hair pencil.

771. *In Ptyalism, Salivation*, and *Idiopathic Ulceration and Sponginess of the Gums*, a piece of Catechu, allowed slowly to dissolve in the mouth, is often of the greatest service. Its efficacy depends upon the presence of Mimotannic Acid and Catechin.

772. *In Toothache*, arising from relaxation of a portion of the gum, or when in the hollow of the tooth there is a piece of fungous flesh, a small portion of Catechu inserted into the carious tooth, or allowed slowly to dissolve in the mouth, is often productive of relief. Dr. Paris recommends a tooth-powder composed of 1 part Catechu and 3 of Charcoal, both finely powdered.

773. *Relaxation of the Uvula*, which gives rise to coughs and an uneasy sensation in the glottis, is frequently effectually

* Lancet, July 9, 1842.

removed by a piece of Catechu, allowed slowly to dissolve in the mouth.

774. *In Hypertrophy of the Tonsils*, a very serviceable astringent gargle is composed of Infusion of Catechu fl. oz. vj., Tincture of Kino fl. drs. ij., M.

775. *In Leucorrhœa*, the Infusion of Catechu, used as a vaginal injection, once or twice daily, has been found useful in lessening the quantity of the discharge.

776. *To Indolent and ill-conditioned Ulcers*, where there is a copious discharge, the local application of Catechu in the form of ointment (gr. lx., Adipis oz. ss.—oz. j.), is occasionally attended with benefit; or they may be washed with the Infusion (*ut supra*).

777. *In Menorrhagia*, Dr. Babington frequently used Catechu combined with Confectio Opii (Nevins). It is inadmissible in plethoric states.

778. CEDRON. The seeds of Simaba Cedron, a tree. *Nat. Ord.* Simarubiaceæ. Indigenous to New Grenada and Central America.

Med. Prop. and Action. The intense bitterness of Cedron indicates its tonic quality. Amongst the natives of South America it has long been held in high repute as *an antidote to Snake Bites*, as *a preventive of Hydrophobia*, and as a remedy *in Intermittent Fevers, Dyspepsia, Spasm of the Bowels, &c.*

779. *Therapeutic Uses. Snake Bites.* Trials with it by Drs. Carentre,* Herran,† and others seem to confirm the statements with regard to its efficacy as a remedy in *Snake Bites*. The mode of administration by the natives is to give grs. ij.—v. of the seed in a wine-glassful of spirits or warm water, and to repeat this every second hour until relief is obtained. A weak infusion is also given to allay thirst. At the same time the wound is washed with an infusion of the seeds, and covered with scrapings of the seed in the form of cataplasm secured *in situ* by a bandage. Dr. Herran, in the eight cases in which he tried it, gave gr. v.—vj. in a spoonful of brandy, and dressed the bite with the Tincture.

780. *Intermittent Fevers.* With regard to its use in intermittents, it has been favourably reported of by M. Rayer‡ and by Dr. Purple,§ of New York; whilst M. Lélut‖ expresses himself doubtful as to its value in this class of diseases. Dr. Purple regards it as possessed of decided anti-periodic virtues, in many respects equal to Quinine. He considers that its marked tonic properties entitle it to a prominent place in the Materia Medica.

* Amer. Journ. of Med. Sci., Jan. 1851.
† Ann. de Thérap., 1851, p. 59.
‡ Ibid., 1852, p. 164.
§ New York Journ. of Med., Sept. 1854.
‖ Ann. de Thérap., 1853, p. 223 (Note).

781. *Other Diseases.* Dr. Guier* employed it successfully in *Cholera Morbus, Colic,* and *Neuralgia of the Face,* and Dr. B. Thompson† derived benefit from it in *Gout.* The dose appears to be somewhat uncertain; the ordinary doses are gr. ij.—vj., but Dr. Purple considers these as far too small; he prescribed gr. x.—xxx. every four hours, and he states that though in very large doses it may produce griping and diarrhœa, yet that these effects are easily controlled. This is hardly in accordance with the statement of Dr. Rotellini, who affirms that it is poisonous in overdoses, and that 25 or 30 grains have proved fatal. It may be given in the form of Acetous Tincture (gr. xl., Acet. Dest. fl. oz. j.) in doses of ɱxx.—xxx.

782. CENTAURIUM. Lesser Centaury. Erythræa Centaurium. Chironia Centaurium, &c. *Nat. Ord.* Gentianaceæ. *Linn. Syst.* Pentandria Monogynia. *Hab.* The Heaths of England and Europe.

Med. Prop. and Action. The whole plant is bitter and tonic. It was formerly held in high esteem, but is now rarely employed. Its active principle, *Centaurin,* is stated to be a febrifuge, when combined with Hydrochloric Acid.

Dose of the powder, gr. xx.—gr. cxx.; of the Infusion (oz. ss., Aq. Oj.), fl. oz. j.—fl. oz. ij.

Therapeutic Uses. The same as Gentian, for which it is a cheap substitute. It is considered useful in *Intermittents.*

783. CERA. Cera Flava. Yellow Wax.

CERA ALBA. White Wax, or Bleached Wax.

Wax is the prepared Honeycomb of Apis Mellifica, the Hive Bee. It is a compound of three substances, *Cerine, Myricine,* and *Ceroleine.*

Med. Prop. and Action. Demulcent and emollient. The White Wax is the only kind administered internally. Externally, it is valuable, as the basis of a large number of ointments, cerates, and plasters.

Offic. Prep. of White Wax. Unguentum Simplex (see Adeps).

Yellow and White Wax are also contained in several of the officinal ointments, and Yellow Wax in some of the plasters.

Dose of White Wax, gr. x.—gr. xx. in emulsion.

784. *Therapeutic Uses. In Dysentery, Diarrhœa,* and in *Catarrhs,* White Wax is occasionally exhibited, with a view of sheathing abraded and irritable surfaces. It is advised to melt the wax with olive oil, and then to mix the oily compound, while hot, with a mucilaginous fluid, by triturating with the yolk of an egg. Dose of the emulsion, a small cupful containing about gr. xx. of Wax, every four or five hours. (A. T. Thompson.)

* Cited in U.S. Disp., p. 1388.

† Ibid., and Med. Times, April 1852.

785. CEREVISIÆ FERMENTUM. Yeast or Barm, the scum or residuum which forms during the process of fermentation of Beer. It is a mass of minute cryptogamic plants (*Torula cerevisiæ*). It consists of two parts:—1. Cell-walls, composed of a kind of Cellulose or Starch; and 2. The contents of the cells, composed of a proteine substance, and probably fat and oil.

Med. Prop. and Action. Stimulant and antiseptic in low fevers. It is chiefly used externally in the form of poultice.

Offic. Prep. Cataplasma Fermenti (Beer Yeast fl. oz. vj.; Flour oz. xiv.; Water heated to 100° fl. oz. vj. The yeast to be mixed with the water, and the flour to be stirred in. The mass to be placed near the fire till it rises).

Dose of Yeast, fl. drs. ij.—fl. oz. j.

786. *Therapeutic Uses. In Typhus and Typhoid Fevers*, Yeast has in some cases been given with signal benefit. Dr. Stoker,* after a trial of its powers for upwards of thirty years, speaks highly of its efficacy. He considers that it is well suited to every stage of Typhus, in which it can be retained by the stomach. It is generally easily taken, either alone or with any medicine that it may be advisable to join with it; and in the worst forms of the fever, when it is the most needed, it not only is seldom rejected by the stomach, but the patient often expresses a liking for it. Dr. Stoker found it act as a gentle laxative, but when this was not desirable, a few drops of T. Opii were added to each dose. He found petechiæ, black loaded tongue, &c., more effectually remedied by it than by any other medicine. In the most obstinate cases of *tympanitic distension*, he found enemas of Yeast and Assafœtida the most efficacious remedies. It may be given in doses of two tablespoonfuls in water or Camphor mixture, every three hours; fl. oz. iv., with an equal quantity of gruel, may be administered as an enema. In quoting the above statement, Dr. Tweedie† adds that he considers Yeast deserving of attention in the low forms of fever. More recently, it has been strongly advocated by Dr. Lamprey,‡ who states that he cannot speak too highly of the stimulating and antiseptic properties of Yeast, given in the following formula:—℞ Cerevisiæ Fermenti f℥x., Camphor. ℥ss., Ether. Nit. f℥iv., M. Dose f℥j., every one, two, or three hours, according to the severity of the symptoms. It has also been used with signal benefit by Mr. Bennett§ of Gateshead.

787. *In Dysentery*, Dr. Lamprey‖ states that he has found Yeast given internally, in combination with Camphor and Ether, have the effect of effectually correcting the fœtor of the dejecta. It not only did this speedily, but diminished the frequency of

* On Continued Fever, Dub., 1829.
† Cyc. Pract. Med., vol. ii. p. 210.
‡ Dublin Quart. Journ., Aug. 1849.
§ Med. Gazette, Jan. 10, 1851.
‖ Op. cit.

the discharges. In the last stages it may prove also a valuable stimulant.

788. *To Fetid, Sloughing, Gangrenous,* and *Cancerous Ulcers,* the Yeast poultice (*ut supra*) is a valuable application. It tends to destroy the fœtor, arrests the sloughing, assists in the separation of the dead parts, and establishes a healthy granulating surface. It occasionally produces great pain.

789. *In Furunculus or Boils,* Mr. Mosse found that Yeast, in doses of a tablespoonful twice daily for adults, exercised a most beneficial influence. By this means he often effected a rapid and complete cure. As a remedy in *Diabetes,* it has been proposed, on chemical grounds, by Dr. W. B. Herapath, and he mentions a case in which he employed it (a tablespoonful twice or thrice daily) with satisfactory results. Its value requires confirmation. It has also been given in Scarlatina of malignant type.

790. CERII NITRAS. Nitrate of Cerium. Nitrate of the Protoxide of Cerium. CeO,NO_5.

CERII OXALAS. Oxalate of Cerium. Oxalate of the Protoxide of Cerium. CeO,C_2O_3.

CERII OXIDUM. Oxide of Cerium. CeO.

Med. Prop. and Action. The Salts of Cerium are regarded by Prof. Simpson,* of Edinburgh, who first introduced them as remedial agents, as possessing sedative and tonic properties, and as useful substitutes, the Nitrate especially, for Bismuth, Nitrate of Silver, and Hydrocyanic Acid.

Dose of the Cerium preparations, gr. iij.—gr. v., in the form of powder or pill, or the Nitrate may be given in solution.

791. *Therapeutic Uses. In Chronic Intestinal Eruption,* a peculiar and intractable form of disease for which Arsenic and Nitrate of Silver are generally prescribed, Dr. Simpson employed the Salts of Cerium with marked advantage. *In Irritable Dyspepsia* attended with *Gastrodynia, Pyrosis,* and *Chronic Vomiting,* its exhibition was attended with satisfactory results. *In the Vomiting of Pregnancy* it afforded prompt relief. Further testimony in favour of the Oxalate, especially in the latter condition, is adduced by Dr. C. Lee.† It seems well worthy of further trials.

792. *In Epilepsy, Chorea, and other allied Convulsive Diseases* in which the Nitrate of Silver is generally employed, it deserves a trial; for, as Prof. Simpson remarks, it is certainly attended with this advantage, that at the same time that it acts as a tonic and sedative, its use may be persevered in without any fear of discoloration of the skin.

* Monthly Journ. of Med., Dec. 1854, and Obstetric Memoirs, &c., 1855, p. 313.

† Amer. Journ. of Med. Sci., Oct. 1860, p. 391.

793. Cetaceum. Spermaceti. A peculiar unctuous substance, obtained from the head of Physeter Macrocephalus, the Sperm or Spermaceti Whale, which inhabits the Pacific and Indian Oceans. It is composed almost entirely of pure Cetin.

Med. Prop. and Action. Demulcent and emollient. It was formerly considered to have many virtues, but it is almost inert. When given internally to sheathe abraded surfaces, &c. it should be given in emulsion with mucilage or yolk of egg.

Offic. Prep. Unguentum Cetacei (Spermaceti oz. v. ; White Wax oz. ij. ; Almond Oil Oj. or q. s.).

794. *Therapeutic Uses. In Catarrhs*, it is occasionally given as a demulcent.

795. Cetraria Islandica. Lichen Islandicus. Iceland Moss is found on the mountains of Northern Europe. *Nat. Ord.* Lichenes. *Linn. Syst.* Cryptogamia. 100 parts contain 44 of Starch, 3 of a bitter principle (*Cetrarin*, or *Cetraric Acid*), and 36 of starchey skeleton, besides sugar, salts, and colouring matter. Iceland Moss contains one kind of starch, which is coloured blue on the addition of Iodine (*lichen starch*), and one which does not become blue with this agent (*Inuline*). It also yields three peculiar acids—Cetraric Acid, Lichestearic Acid, and Fumaric Acid; a neutral substance and a green colouring matter (Chlorothalle).*

Med. Prop. and Action. Demulcent and tonic, in the form of decoction or jelly. The bitter principle which renders the taste very objectionable is best extracted by washing the lichen in a weak solution of potash (1 part in 300 of water) or in alcohol, or in plain distilled water. It is considered highly nutritive.

Offic. Prep. Decoctum Cetrariæ (Iceland Moss oz. j. ; Distilled Water Oiss. Wash the Moss in cold water; boil with the distilled water for ten minutes; strain. The product to measure about a pint). Dose, fl. oz. iv., or ad libitum. By further boiling a jelly is obtained.

796. *Therapeutic Uses. In Scrofulous and Scorbutic cases, when accompanied by much debility; and also in debility arising from Diarrhœa, Dysentery, and other exhausting diseases*, Iceland Moss, in the form of decoction or jelly, is regarded as a valuable tonic, and as a highly nutritive aliment.

797. *In Phthisis*, Iceland Moss (*ut supra*) has been much lauded, not only as a nutritive aliment, but as an expectorant. In the latter character, it has been recommended by Scopoli, Hertz, Schneider, and Stoll. Sir A. Chrichton† also speaks highly of it. Its good effects, he says, consist in improving the matter expectorated, in diminishing the frequency of the cough, and rendering it more easy, in calming the irritability of the

* Pereira, vol ii , pt. i., pp. 23, 24. † Lond. Med. Journ., vol. x. p. 299.

patient, and in preventing or moderating hectic fever. Many doubt its expectorant properties; they have doubtless been exaggerated.

798. CETRARIN. Cetraric Acid. The bitter principle of Cetraria Islandica, Iceland Moss, occurs in small, white, inodorous, intensely bitter acicular crystals, very slightly soluble in water, but readily so in alkaline solutions. Comp. $C_{34}H_{16}O_{15}$. It is regarded as febrifuge.

799. *Therapeutic Uses. In Intermittent Fevers*, it has been proposed as a substitute for Cinchona; but its real value is yet to be ascertained.

CHAMOMILE. See ANTHEMIS NOBILIS.

800. CHENOPODIUM AMBROSIOIDES. Mexican Tea Plant. *Nat. Ord.* Chenopodeæ. *Linn. Syst.* Pentandria Digynia. *Hab.* Mexico and Brazil. (Erva de Sancta Maria, Vern.)

Med. Prop. and Action. Anti-spasmodic and anthelmintic. The seeds and leaves yield an essential oil which possesses these properties in a great degree. As a vermifuge, it is a popular Brazilian remedy. It is particularly adapted for children.

Dose of the Oil, gutt. ij.—iv.—vj.

801. *Therapeutic Uses. In Hysterical Affections*, Dr. Darent* states that its effects are very marked. He speaks highly of its efficacy, and ranks it next in power to Valerian. *In Chorea*, he also found it serviceable. As a vermifuge, it agrees closely with the following article, for which it is often substituted in America.

802. CHENOPODIUM ANTHELMINTICUM. Worm Seed. Stink Wood. A native of the United States.

Med. Prop. and Action. Anthelmintic.

Dose of the powder of the seeds, gr. xx.—gr. xl. in the form of electuary; of the Oil, gutt. x.—gutt. xx.

803. *Therapeutic Uses. Against Worms*, it is a popular remedy amongst the Americans. It is said to be very efficacious. Dr. Dewees† states that he has long been in the habit of employing the oil with the best effects, provided there was no fever: this, he considers, contra-indicates its use. After two or three doses of the oil have been given, it is useful to interpose a dose of a purgative, such as Castor Oil.

804. CHENOPODIUM OLIDUM. C. Vulvaria. Stinking Goosefoot or Orach. A native of many parts of Europe and North America.

* Med. Times, vol. xviii. p. 250.

† On the Management of Children, see p. 496.

Med. Prop. and Action. The whole plant is extremely fetid, and has long been esteemed emmenagogue and stimulant.

Dose of the inspissated juice or extract, gr. v.—gr. x., night and morning.

805. *Therapeutic Uses. Amenorrhœa.* Dr. Kreig,* of Leipsic, records several cases of Amenorrhœa in which the recently expressed juice of this plant was successfully employed. By drying or keeping, he found that it lost much of its efficacy. There is also strong testimony in its favour from Dr. Houlton,† who considers that it acts directly upon the uterus.

806. *In Hysteria and other Nervous Disorders*, Cullen regarded it as a powerful stimulant and anti-spasmodic.

807. CHIMAPHILA UMBELLATA. Pyrola Umbellata. Winter Green. Pipsissewa. *Nat. Ord.* Ericaceæ. *Linn. Syst.* Decandria Monogynia. *Hab.* Northern Europe, Asia, and America.

Med. Prop. and Action. The whole plant is astringent, tonic, and diuretic. It increases the appetite, improves the digestion, and the urine under its use becomes dark, and has the peculiar odour of the plant, showing that the active principles are absorbed into the system. The bruised leaves, externally applied, are rubefacient and discutient. It contains Tannic and perhaps Gallic acids, and 18 per cent. of Extractive. It is best given in the form of decoction (Chimaphila ʒj., Aq. Oiss., boil to Oj. and strain, Ph. Lond.), in doses of fʒj.—fʒij. frequently repeated.

808. *Therapeutic Uses. In Dropsy, Ascites, and Anasarca attended with much debility*, Chimaphila was first used by Dr. Mitchell, in 1803, and subsequently by Mr. Carter and Dr. Somerville.‡ Dr. Bigelow § agrees with the two latter in speaking highly of its efficacy. He says that, when first given, it makes a distinct and evident impression on the disease, communicating an increased activity to the absorbents, followed by a great augmentation of the secretion from the kidneys. The benefit, in most instances, is temporary, and it is better to omit the medicine for a time and to resume it afresh, than to continue it until the system has become insensible to its stimulus. It is generally an acceptable medicine to the patient, and is preferable to other diuretics, both from its sensible qualities, and its effects on the stomach.

809. *Nephritis, Strangury, and other diseases of the Genito-urinary organs*, are stated by Bigelow‖ to be greatly relieved by the use of this remedy.

810. *In Scrofula and Scrofulous Affections*, the following beverage, called "Pipsissewa Beer," is a popular American remedy. To a decoction or infusion, sugar and ginger are added

* Brit. and For. Med. Rev., No. xiii. p. 233.
† Med. Times, vol. xv. p. 253.
‡ Med. Chir. Trans., vol. v. p. 340.
§ Amer. Med. Bot., vol. ii. p. 15.
‖ Op. cit.

to flavour it, and yeast to produce fermentation. Under its use, sensible improvement is said to take place, but as a curative agent it is of no value.

811. *In Chronic Rheumatism*, the leaves, externally applied to the seat of pain, are stated to afford great relief by their rubefacient action.

812. CHIOCOCCA ANGUIFUGA. Snowberry Tree. *Nat. Ord.* Rubiaceæ. *Linn. Syst.* Pentandria Monogynia. *Hab.* South America, West Indies.

Med. Prop. and Action. The root of this tree, and of others of the same species, is known by the name of *Cainca Root.* In doses of gr. lx. of the powdered root daily, it is bitter, tonic, and diuretic; in larger doses, emetic and cathartic. It is esteemed by the Peruvians as a remedy for snake-bites. Active principle, *Cainic* or *Caincic Acid.*

Dose of the powdered root, as a tonic, gr. lx.; as a cathartic and emetic, gr. cxx. or more.

813. *Therapeutic Uses. In Dropsical Affections*, Cainca root has been successfully employed by M. Lemasson.* He states that it exercises a very decided influence, increasing the flow of urine, improving the appetite, and restoring the general health. He advises a decoction (℥ij. of the root, f℥viij. of water; boil for ten minutes, and strain), of which half is to be taken at once, and the second half after an interval of two hours. The action upon the kidneys is very decided, and continues for several days. The medicine should not be repeated until the urine diminishes. It has also been successfully employed by Caventou and François.†

814. CHIRATA. Chiretta. The Herb and Root of Ophelia Chirata (D.C.), of Agathotes Chirayta (Don), of Gentiana Chirayita (Fleming). *Nat. Ord.* Gentianaceæ. *Linn. Syst.* Tetandria Monogynia. *Source*, Nepaul, the Himalayas, and other parts of India.

Med. Prop. and Action. Bitter, tonic, and stomachic. It is closely allied in its medicinal properties to Gentian; like it, it promotes digestion, improves the appetite, and gives a tone to the system, without producing much stimulant effect, or causing constipation. It contains a resin, and a yellow bitter matter, on which the activity of the plant depends. It may be given in infusion, in Compound Tincture (Chiretta oz. iiss., Orange Peel oz. j., Cardamoms oz. ss., Proof Spirit Oij.) in doses of fl. drm. j.—fl. drs. ij., or in the form of Extract in doses of gr. x. thrice daily.

Offic. Prep. Infusum Chiratæ (Chiretta bruised oz. ½, Distilled Water at 120° fl. oz. x.; infuse for half an hour). Dose, fl. oz. j.—fl. oz. ij.

Tinctura Chiratæ (Chiretta bruised oz. iiss.; Proof Spirit Oj. Prepared by maceration and percolation). Dose, fl. drm. ss.—fl. drm. j.

815. *Therapeutic Uses*, the same as Gentian, for which it is an excellent substitute.

* Journal Hebdom., Oct. 1841.

† Brit. and For. Med. Rev., April 1838.

816. CHLORUM. Chlorine. Chlorinium. Dephlogisticated Muriatic Acid (Scheele). At ordinary temperature it is a pungent suffocating gas; but by a pressure of 4 atmospheres at 60°, it is converted into a yellow liquid. Sp. Gr. 1·33.

Med. Prop. and Action. Powerful irritant of the bronchial mucous membrane, causing, when inhaled, a sense of suffocation, violent cough, and spasm of the glottis. Properly diluted, it has proved useful in some pulmonary affections. It is a valuable antidote in poisoning by Hydrocyanic Acid and Sulphuretted Hydrogen. It destroys vegetable colours, organic odours, and infectious matters, and is hence used as a bleaching agent, deodoriser, and disinfectant.

As a fumigating and disinfecting agent, Chlorine is generally admitted to be of great value. Prof. Faraday* recommends the following mode of application:—One part of common salt, and one part of the Binoxide of Manganese having been placed in a convenient vessel, there is to be added 2 parts of Sulphuric Acid, previously mixed with 1 part by weight of water. The salt should be bruised down, previous to being mixed with the manganese, and the acid and water should be mixed in a wooden bowl, and allowed to stand for some hours, that the heat produced by their combination may be dissipated before they are poured on the other ingredients. Common red pans of a flat form are best suited for the fumigation. Guyton Morveau, one of the first who employed it extensively, found the following quantities sufficient for the perfect disinfection of an uninhabited room, 40 feet by 20:—Oxide of Manganese ʒij, Common Salt ʒx., Sulphuric Acid fʒvj., Water fʒiv. It appears that Chlorine fumigations fail to arrest the progress of Cholera, Erysipelas, and some other diseases.

Offic. Prep. Liquor Chlori. (See Chlori Liquor.)

817. *Therapeutic Uses. In Acute and Chronic Bronchitis*, Chlorine inhalations have been found very effectual by Dr. Toulmouche.† He states that, in the prison of Rennes, he has been in the habit of employing this remedy for several years, and directs from 10 to 100 drops of the solution of Chlorine to be poured on hot water, in a common inhaling apparatus, through which the patient breathes. In those cases of chronic bronchitis complicated with emphysema of the lungs, and in pituitous catarrh in which the sputa are generally transparent, little benefit was derived from the inhalation, but in all other cases it was given with advantage. In proof of this, he gives a table of 309 cases, and the results are decidedly in favour of the remedy.

818. *In Phthisis*, the inhalation of Chlorine was first employed by M. Gannal,‡ in 1817. He states that, being attached to a manufactory of printed calicoes at St. Denis, he observed that those workmen who happened to be affected with phthisical symptoms experienced relief, and many quickly recovered their health, from being exposed to the inhalation of the Chlorine disengaged in the various processes. He communicated this fact to Laennec, who instituted some experiments at the Hos-

* Journal of Arts and Sciences, vol. xviii. p. 92.

† Gazette Médicale, June 1838.

‡ On the Inhalation of Chlorine, &c. translated by Mr. Potter, Lond. 1830.

pital of La Charité in 1823, and the results were, on the whole, satisfactory. It has more recently been employed by Dr. Snow,* with a few patients in different stages of Phthisis, but with no advantage, although it was continued by some of them for a few weeks. *In Ulceration of the Lungs*, Albers† found it productive of excellent effects.

819. *In Aphonia following an ordinary cold, without organic lesion*, Dr. Pancoast‡ found the vapour of Chlorine highly serviceable in two instances. The Chlorine is readily disengaged by adding, drop by drop, dilute Hydrochloric Acid to a solution of the Chloride of Lime or Soda. Care should be taken that the gas is properly diluted.

820. *In Chronic Diseases of the Liver*, Chlorine vapour baths are advised by Mr. Wallace.§ He found great benefit from them, and directs the patient to remain in the bath (at an average temperature of 150° F.) for about half an hour at a time. It is deserving of a trial in long-standing cases.

821. CHLORI LIQUOR. Solution of Chlorine. CHLORINII AQUA. Solutio vel Liquor Chlorinii. Chlorine gas dissolved in half its volume of water, and constituting 0·006 of the weight of the solution. Sp. Gr. 1·003.

Med. Prop. and Action. The concentrated solution is an irritant poison, and caustic; slightly diluted, it is a powerful counter-irritant; when largely diluted, it is a tonic and stimulant. As a gargle or lotion, an average strength is 1 part of the solution to 8 of water. Salivation is said to have followed its prolonged use. Like the gas, it destroys vegetable colours, and is an excellent disinfecting and fumigating agent.

Dose, ♏x.—♏xxx., or more freely diluted.

822. *Therapeutic Uses. In Scarlatina*, the solution of Chlorine has been used with great advantage. Amongst others, Drs. Taynton and Williams‖ speak highly of it, and Dr. Tweedie¶ states that he has derived great benefit from the following mixture:—℞ Solut. Chlorin. fʒj., Syr. Limon. fʒij., Aquæ fʒviij., M. Dose for a child, gutt. x.—xij. every six or eight hours. The solution should be fresh. A diluted solution also forms an excellent gargle for the sore throat which accompanies this disease.

823. *As a preventive to the infection of Puerperal Fever*, its efficacy has been established by Dr. Semelweiss,** of Vienna. At one period a large number of cases of Puerperal Fever occurred in Vienna, and they were supposed to arise from the want of

* Lond. Journ. of Medicine, Feb. 1851.

† British and For. Med. Rev., vol. iv. p. 212.

‡ Trans. of American Medical Association, vol. iii. 1851 (R).

§ Lancet, 1831-2, vol. i. p. 859.

‖ Med. Gazette, vol. iv.

¶ Cyclop. of Pract. Med., vol. iii. p. 655.

** Dr. Routh on Puerperal Fever of Vienna, Med. Chir. Trans., vol. xxxii.

proper precautions in the surgeons and students engaged in *post-mortem* examinations of puerperal subjects. Dr. Semelweiss therefore insisted on the necessity of their washing their hands in a solution of Chlorine, prior to and after every such *post-mortem;* and the result was, that the rate of mortality was reduced from 30 to 7 per month, which was about the ordinary average. It is a precaution which should never be neglected.

824. *Gastro-enteric Irritation*, according to the experience of Mr. Mann,* is cured or greatly ameliorated by Aq. Chlorinii, in doses of f℥j.—f℥ij. daily, in water.

825. *In Aphthæ, Stomatitis*, and *Cancrum Oris*, the solution of Chlorine thoroughly incorporated with equal parts of honey, is an efficacious application.

826. *In Ptyalism*, a weak solution of Chlorine (1 Liq. Chlor. to 8 of Water) proves very serviceable, correcting the fœtor and slightly diminishing the discharge.

827. *In Cynanche Maligna*, the internal use of the Solution of Chlorine (*ut supra*) has been attended with benefit. A solution (fl. oz. j.—Aq. fl. oz. v.) is a serviceable gargle, not only in this affection, but in *Cynanche Tonsillaris.*

828. *In Tænia, Porrigo, Scabies*, and other cutaneous diseases, a weak solution is an excellent local application.

829. *To Cancerous and other Ulcers, with a fetid discharge*, a diluted solution (*ut supra*) is useful in correcting the offensive odour. The great value of chlorinated solutions to *Suppurating Wounds* has been clearly shown by Dr. Hervieux.† He advises the permanent application of a sponge steeped in the Chlorinated Solution, and under its use he states that severe suppurating wounds are soon changed into healthy sores. It is well worthy of a trial.

830. CHLOROFORMUM. Chloroform, or the Terchloride of Formyle. C_2H,Cl_3. A dense, limpid, colourless liquid; readily evaporating, and possessing an agreeable, fragrant, fruit-like odour, and a saccharine, pleasant taste. Sp. Gr. 1·48 to 1·496. Slightly soluble in Water, but mixing with Ether and Alcohol in all proportions. It is a compound of 2 atoms of Carbon, 1 of Hydrogen, and 3 of Chlorine.

Med. Prop. and Action. Inhaled in the form of vapour, anæsthetic; taken internally, narcotic and anti-spasmodic: applied externally, undiluted, counter-irritant; diluted, anodyne.

Offic. Prep. 1. Linimentum Chloroformi (Chloroform fl. oz. ij.; Liniment of Camphor fl. oz ij.).

2. Spiritus Chloroformi (Spirit of Chloroform, or Chloric Ether) (Chloroform fl. oz. j., Rectified Spirit fl. oz. xix.). Sp. Gr. 0·871. This preparation is

* Med. Gazette, May 24, 1850.

† Brit. and For. Med. Chir. Rev., Jan. 1861.

intended to supersede that known before the publication of the Brit. Pharm. as Chloric Ether, which was of uncertain strength. It is the best form in which Chloroform can be administered internally, and is a most valuable anodyne, stimulant, and anti-spasmodic. Dose, ♏x.—♏xxx., or more.

Dose of Chloroform for internal administration. ♏j.—♏x. rubbed up with syrup or yolk of egg and mucilage; for inhalation, ♏xv.—fl. drm. j. repeated as required.

Chloroform is one of the principal ingredients in the popular anodyne and narcotic medicine called Chlorodyne. According to Mr. Squire,* the following is the probable composition of Chlorodyne:—Chloroform oz. iv.; Rectified Spirit oz. iv.; Treacle oz. iv.; Extract of Liquorice oz. iiss.; Muriate of Morphia grs. viij.; Oil of Peppermint ♏xvi.; Syrup 17½ oz; Prussic Acid (2 per cent.) oz. ij. Dose, ♏v.—♏x.

Chloroform was first discovered and described by Soubeiran, in 1831, and by Liebig, in 1832; and its composition was first accurately ascertained by Dumas, in 1835. None of these chemists, however, appear to have been aware of its anæsthetic properties; the honour of this great discovery is due to Prof. Simpson, of Edinburgh, in 1847. It certainly deserves to rank as the most important improvement in modern medicine or surgery: a few drops inhaled producing such complete insensibility, that the most painful operations of surgery can be performed without consciousness or pain on the part of the patient. Sulphuric Ether, originally discovered in America to be a powerful anæsthetic agent, was exciting the attention, not only of the profession, but of the public, when Chloroform was introduced by Dr. Simpson, and was almost immediately substituted in its place. The advantages of Chloroform over Ether were found to be as follows:—1. The effect was more complete and direct; 2. The quantity required was smaller; 3. The odour was more agreeable and less irritating; 4. The effect produced was more permanent; 5. Recovery took place decidedly quicker than when Ether was employed. The relative advantages of Ether and Chloroform have lately been re-investigated by the Committee on Chloroform appointed by the Medico-Chirurgical Society.† In their Report they state that Ether is slow and uncertain in its action, though it is capable of producing the requisite insensibility, and is less dangerous in its operation than Chloroform. In many respects its action is similar to that of dilute Chloroform. The primary stimulating effect of Ether on the heart's action is greater and of longer duration, and the subsequent depression of the heart's action is not so great as that produced, at the same degree of insensibility, by Chloroform. On the whole, however, the Committee concur in the general opinion which in Great Britain has led to the disuse of Ether as an inconvenient anæsthetic. They find a mixture of Ether and Chloroform to be as effective as pure Chloroform, and a safer agent when deep and prolonged anæsthesia is to be induced; though slow in its action, it is sufficiently rapid in its operation to be convenient for general use. They suggest for use a mixture composed of Ether three parts, Chloroform two parts, Alcohol one part (by measure), on the grounds that Ether and Chloroform blend uniformly when combined with Alcohol, and the constituents escape equably in vapour. (See ANÆSTHETICS, part ii.)

831. Chloroform, when first inhaled, gives rise to exceedingly pleasant sensations, and a rapid flow of thoughts and images, resembling an agreeable dream, until, as the dose is increased, these become confused and incoherent. Dr. Snow has divided its operation into five degrees or stages.

The First Degree includes the slighter effects which are experienced by the patient, whilst he retains sufficient consciousness to appreciate his situation, and a knowledge of what is occurring around him.

The Second Degree is a dreaming or wandering state of mind, which is

* Companion to the Brit. Pharmacopœia, p. 58.

† Lancet, July 9, 1864.

observed when the patient is silent, immediately preceding the loss of consciousness.

The Third Degree. In this there are no voluntary movements, articulate sounds, nor anything indicating the presence of ideas; but there may be involuntary muscular contractions or rigidity.

The Fourth Degree is a state of absolute relaxation of the voluntary muscles, in which no contraction can be excited in them. The breathing is sometimes stertorous in this stage.

The Fifth Degree is a state of impeded respiration observed previous to death in animals killed by Chloroform.

These various degrees run gradually into each other, and cannot always be clearly distinguished; it is seldom necessary, however, to carry the narcotism beyond the third degree, even in the most severe operations. The pulse is generally somewhat accelerated during the inhalation.

832. *Observations on its Use.* 1. The period of life, according to Dr. Snow, in which Chloroform acts most pleasantly is childhood. There is no case on record of death from Chloroform under five years of age (Sansom*). It is never necessary to carry the narcotism further than the beginning of the third degree in children, and very often not beyond the second. As age advances, the action of Chloroform, though equally safe and effectual, is not so uniformly pleasant in appearance. In old age there is frequently either groaning or a slight degree of stertor; and the patients are generally longer than others in recovering their consciousness.

2. Persons who are debilitated, either by long sickness or any other cause, become more quietly and quickly narcotised than those in robust health. In these last there is often considerable mental excitement, and resistance to the anæsthetic influence. Dr. Sansom states that the age most prone to death from Chloroform is that called the prime of life, the average being between thirty and forty. Men are also more prone to death from this agent than females. There has been greater fatality amongst persons about to undergo slight operations for maladies which have not interfered with their general health, than amongst patients who have taken Chloroform previous to capital operations.

3. It has been the practice in some of the London hospitals, to give a light and moderate meal two or three hours previous to the administration of Chloroform. M. Aran, however, insists strongly upon the necessity of its employment upon an empty stomach. MM. Perrin and Duroy also, from the observations of the phenomena produced by Chloroform after a hearty meal in the dog, assert the importance of administering Chloroform only when the stomach is empty.

4. During the administration of Chloroform, the patient's mind should be kept as quiet as possible, not distracting him by unnecessary questions, or attracting his attention by surrounding objects.

5. The horizontal position is the one to be preferred when practicable.

6. In operations in the mouth and nose, it must be used warily, if at all, in consequence of the risk of asphyxia by blood escaping into the air-passages. (Miller.)

7. In operations, an assistant, who should do nothing else, should always be employed to administer the Chloroform, to watch its effects, &c. (Lizars.)

8. If vomiting ensue, the operation should be suspended until this action ceases, otherwise there is imminent risk of suffocation. (Lizars.)

9. After the inhalation has been discontinued, the patient spontaneously recovers from its effects. It is better not to speak to him prematurely, but quietly to await the complete return of consciousness.

833. *Cautions and Contra-indications.* 1. Do not be too anxious to obtain a rapid effect. 2. Be careful that a large proportion of atmospheric air be mixed with and inhaled at the same time as the Chloroform. The proportion of Chloroform to atmospheric air should not exceed 3½ per cent. For the purpose of insuring accuracy in the proportion, it is safer to administer the Chloroform

* Sansom on Chloroform, Medical Times and Gazette, Nov. 7, 1863.

by an inhaler—*e. g.* Snow's, Clover's, or Sansom's. 3. It should be given with great caution when extensive disease of the lungs or heart exists. 4. It should never be given when the pulse is weak and intermitting. 5. It is contra-indicated in poisoned conditions of the blood, as uræmia; and in acute cases of alcoholism, *e.g.* delirium tremens. (Sansom.) 6. It should not be given in cases of advanced organic disease. 7. It is not advisable to induce profound insensibility during pregnancy. 8. It should never be employed without the presence of a medical man.

834. *Mode of administering Chloroform.* A plan commonly adopted is that which was first recommended by Dr. Simpson. A clean white handkerchief is to be folded funnel-shaped; into this the liquid is to be poured; it should at first be placed near the mouth of the patient; and, after a few respirations, over the mouth and nose. It is a good plan to allow the patient to hold the handkerchief, unless we desire to produce a deep state of narcotism, as it will fall from the hand when sleep commences. Another mode of administration proposed by Dr. Moir* and approved by Dr. Simpson, is to lay one single layer of a towel or handkerchief over the patient's nose and mouth, taking care not to cover the eyes, and to drop on this layer Chloroform drop by drop, until anæsthesia is sufficiently marked.

It may be doubted, however, whether when complete anæsthesia is to be produced, these "simple" modes of administration are sufficiently safe for adoption. Dr. Snow proved that patients cannot breathe an atmosphere containing more than 5 per cent. of Chloroform without danger. He objected strongly to the use of the handkerchief,† and the recent Committee of the Royal Medical and Chirurgical Society‡ state that 3½ per cent. should be the average amount, and 4½ per cent. the maximum proportion. It is true that the above-named committee state that an apparatus is not essential to safety if due care be taken in giving the Chloroform. Free admission of air with the anæsthetic is the one thing necessary, and guaranteeing this, any apparatus may be used. But Dr. Sansom§ has shown that of eighty cases of death from Chloroform seventy-eight occurred after its administration on a towel, napkin, or sponge. There have been in all rather over 150 deaths from Chloroform; in only about a dozen were precautions taken to insure the proper dilution of the vapour. It is difficult to guarantee accurate dilution, except by using an inhaler, constructed expressly for that purpose.

835. *The advantages of Chloroform in Surgery* have been ably enumerated by Prof. Miller,‖ of Edinburgh. 1. It permits the performance of operations, which, either from mental agitation or extreme bodily pain, would otherwise be inexpedient. 2. It permits the performance of operations which would otherwise be impracticable, *e.g.* deep-seated tumours of the neck, which require great nicety of manipulation, and much steadiness on the part of the patient. 3. It affords great relief to the operator as well as to the patient. 4. It affords the operator time for deliberate action—he has now no reason or excuse for hurrying over an operation. 5. It not only does not favour, but tends to save hæmorrhage, both during and after the operation. 6. It renders delicate dissections more simple and safe. Excepting the flow of blood, the anatomy is as plain as in a dissecting-room. 7. It lulls pain after operations, and may advantageously be employed, although inexpedient during the operation itself. 8. In operations on the skull and brain, anæsthesia is not contra-indicated. 9. Besides the above, there are other obvious advantages to the patient; viz., absence of alarm and of excitement and of shock, previous to the operation; freedom from pain during it, and during the arrangement and dressing of the wound; a greater readiness to undergo an operation, rendering this, therefore, because early, the more likely to prove successful; and the prospect, at all times, of a better recovery. 10. *In the examination of Injuries, in the operation of Sounding, in Irritable Stricture, in Dislocation, in the reduction of Hernia*, and in many other cases, anæsthesia is of the greatest benefit, not only to the patient, but to the surgeon.

* Edin. Med. Journ., Dec. 1861.
† Med. Times, Nov. 20, 1847.
‡ Lancet, July 9, 1864.
§ Med. Times & Gaz., Oct. 17, 1863.
‖ Surgical Experience of Chloroform, 8vo, 1848 (R).

836. *Directions for its employment* are thus ably given by Dr. Snow:*—When voluntary motion is no longer apparent, in order to become informed respecting the state of the patient, the eyelid should be gently raised, touching its free border. If he look up, it is evident that narcotism has not exceeded the second stage. If no voluntary motion be excited, the third degree is probably attained; and, if the eye be turned up, this is pretty certain. But, notwithstanding this, if involuntary winking be occasioned by touching the edge of the eyelid, it is necessary to continue the vapour a little longer, before the operation is commenced. In doing so, however, if the narcotism have already reached the third degree, and there is no particular rigidity or struggling, the vapour may be given in a more dilute form, or the inhalation may be intermitted for two or three inspirations at a time. In this way insensibility of the nerves is obtained, without increasing the narcotism of the nervous centres. As soon as the sensibility of the conjunctiva is abolished, or so far blunted that the free edge of the eyelid, or the eye itself, can be touched without decided winking, the operation may be commenced, with confidence that there will be no pain, and no involuntary flinching to interfere with the operation. When there is struggling or great rigidity in the third stage, it is requisite to continue the vapour a little longer, till this state subside. If there be any approach to stertorous breathing, the inhalation should be at once suspended. Stertor, however, never commences till the patient is perfectly insensible. The time occupied in the inhalation is, usually, from two to three minutes. The operation having been commenced, the medical man having charge of the Chloroform should carefully watch the patient's countenance, and if there be any sign of returning sensibility, a little more vapour should be given during the short time occupied in removing the limb. After the amputation is completed, the vapour need not be repeated until there is decided evidence of sensation. When the arteries to be tied are not numerous, it is sometimes unnecessary to repeat the inhalation. Generally, however, it is requisite to give a little Chloroform at intervals, and if cold water have to be applied to stop the oozing of the blood, or the flaps have to be united by sutures, it is advisable to keep the patient insensible until this is done.

[The following are the rules for the use of Chloroform in surgical operations lately laid down by the Committee of the Royal Medical and Chirurgical Society.

With heart-disease the anæsthetic may be given in any case which requires an operation, although when there is evidence of a fatty, weak, or dilated heart, great caution is demanded. Valvular disease is of less importance.

In phthisis, when an operation is unavoidable, the anæsthetic may be given with impunity.

For all operations upon the jaws and teeth, the lips, cheeks, and tongue, the anæsthetic may be inhaled with ordinary safety. By care and good management the patient may be kept under its influence to the completion of the operation. In these cases, blood, as it escapes, if not voided by the mouth, passes into the pharynx. If any small quantity find its way through the larynx, it is readily expelled by coughing. In operations upon the soft palate, fauces, pharynx, and posterior nares, if sudden or severe hæmorrhage is likely to occur, it is not advisable to induce deep insensibility.

In cases requiring laryngotomy and tracheotomy the anæsthetic may be employed with safety and advantage.

For operations upon the eye, involving the contents of the globe, the use of anæsthetics is open to objection on account of the damage which the eye may sustain from muscular straining or vomiting. If employed, profound insensibility should be induced.

In operations for hernia, and in the application of the taxis, the anæsthetic acts most beneficially. For most operations about the anus profound anæsthesia is positively demanded.

In the condition of shock or great depression, as after hæmorrhage, careful administration of the anæsthetic diminishes the risk of an operation.

* Medical Gazette, Dec. 15, 1848.

In all cases, other than those specially referred to, it is sufficient to state, so far as a mere surgical operation is concerned, that an anæsthetic may invariably be administered.

The continuous vomiting occasionally induced by, and following upon the inhalation of anæsthetics, may be injurious by consequent exhaustion, as well as by mechanically disturbing the repair of a wound. With this reservation they do not appear to interfere with the recovery of patients from surgical operations.]

837. *The injurious and fatal consequences which occasionally attend upon the Inhalation of Chloroform:*—1. *Vomiting* This has been mostly observed when the inhalation has been practised at an early period after the patient has partaken of a full meal, but it sometimes occurs without any assignable cause. 2. *Convulsions.* Much difference of opinion appears to exist as to the frequency of convulsions after the inhalation of Chloroform; those who are inimical to its general adoption representing convulsions as being a very frequent occurrence, while those who favour its use, and this class, it should be remembered, have employed it most extensively, declare them to be very rare. Dr Nevins * considers the proportion to be one in every six or eight, much too high a ratio; probably one in fifteen or twenty would be nearer the average, but sufficient statistical data are wanting whereon to rest any positive statement. It is fortunate, observes Dr. Nevins, that these convulsions scarcely ever commence during an operation; they are generally manifested as soon as the agent begins to take effect, if they are present at all, and therefore a surgeon is not liable to be betrayed into commencing an operation during their absence, and being interrupted by their subsequent appearance. If they are so severe as to interfere with the operation, he has nothing to do but to wait until the effects of the Chloroform have gone off, and his patient is no worse than if Chloroform had not been known. 3. *Depression or Prostration.* This occurs more or less in most cases. In the majority, this effect passes off speedily, and leaves no ulterior ill effects; whilst in others (a very small number compared with the number of subjects who have been brought under the influence of this agent), the depression has been alarming and even fatal. 4. *Headache* has been observed in many cases, but it passes off in most instances in the course of a few hours. 5. *Excoriation of the Lips and Nose.* This may be prevented by taking care to avoid direct contact. 6. *Death.* Dr. Sansom calculated that at the period at which he wrote (Sept., 1863), Chloroform had been administered 2,000,000 times, whilst the deaths which were known to have occurred were rather over 150. This is a very small number indeed when we consider the powerful character of the agent, the necessarily imperfect knowledge which existed with respect to its laws and operation at the dates immediately following its introduction, and the indiscriminate manner in which it has been employed. No remedy of the same power has been used so extensively and has been productive of less mischief. A strict attention to the rules, &c., laid down is imperatively demanded, in order to avoid this or any other ill consequence. The signs of danger from the inhalation of Chloroform are thus deduced by Dr. Sansom† from the records of fifty-one fatal cases:—(*a*) Sudden stoppage of the pulse. This was the first sign observed in thirty-eight (*b*) In addition, twenty-five showed pallor of the countenance. (*c*) Great muscular excitement, immediately followed by collapse, was present in five. (*d*) Sudden vomiting, with instant cessation of the pulse, in two. (*e*) Congestion of the face in six. (*f*) Cessation of breathing was the most noticeable point in eight cases. In cases of danger the great practical point is to restore the movements of respiration, and thus to give the stimulus of properly aërated blood to the failing heart. For this purpose artificial respiration must be performed either by one of the two postural methods of Dr. Sylvester or Dr. Marshall Hall, or by mouth-to-mouth insufflation, or by galvanism of the phrenic nerve. Before any means of artificial respiration are adopted the tongue must be well drawn

* Translation of Lond. Pharm., 1851, p. 125.

† Sansom on Chloroform, Med. Times and Gazette, Nov. 7, 1863.

forward. Mr. Robinson* found that in cases of prolonged asphyxia from Chloroform, the exhibition of oxygen gas, diluted with atmospheric air, was successful in restoring the patient; but experiment has proved that the insufflation of nitrogen answers the purpose as well as that of oxygen or atmospheric air. The stimulus which recalls the reflex movements of respiration would appear to be as much physical as chemical. In slight cases the application of Ammonia, and dashing cold water in the face, will be sufficient to restore the patient. On the important question of the action of Chloroform on the heart and respiration, the Committee of the Medico-Chirurgical Society† state that "the first effect of Chloroform vapour is to increase the force of the heart's action, but this effect is slight and transient, for when complete anæsthesia is produced, the heart in all cases acts with less than its natural force. The strongest doses of Chloroform vapour, when admitted freely into the lungs, destroy animal life by arresting the action of the heart; whilst by moderate doses the heart's action is much weakened for some time before death ensues; respiration generally, but not invariably, ceasing before the action of the heart, death being due both to the failure of the heart's action and to that of the respiratory function. The danger attending the use of Chloroform increases with the degree of stupor it induces, the apparent irregularities in the action of the anæsthetic mainly depending on the varying strength of the vapour employed, on the quality of the Chloroform, and on the constitution of the patient." For resuscitation, the Committee state "that the most certain means of restoring life after poisoning with anæsthetics is by artificial respiration. By this means resuscitation may generally be accomplished after natural respiration has ceased, provided the heart continues to act; and it may *sometimes* be effected even after the cessation of the heart's action, but this result is exceptional. Galvanism resuscitates within the same limits as artificial respiration; it is, however, far less to be relied on than artificial respiration in equal cases. With either remedy it is found that animals quickly rendered insensible by a strong dose are more easily recovered than those which have been gradually narcotised, even by a small percentage of the anæsthetic." Artificial respiration should on no account be delayed or suspended in order that galvanism may be tried.

838. *Chloroform in Midwifery.* In no branch of the medical science has Chloroform been more extensively employed than in this, and in none has its value been more a matter of discussion. It has now, however, been administered in so many thousands of cases, and with so few deaths, or other ill consequences, resulting from its use, that few men will hesitate to employ it in any complicated cases, and many give it in natural labour, where it is the wish of the patient to have it administered. The immunity from death by Chloroform observed amongst parturient women is proved by the fact that of eighty-one fatal cases collected by Dr. Sansom three only were cases of natural labour.

Dr. Churchill‡ observes that Chloroform has been now (1850) used extensively in Great Britain and America, and on the Continent; and we have an account of at least 3,000 cases, in which it has been employed. From this it appears—

1. That in Midwifery practice no death has occurred which can be fairly and directly attributed to the Chloroform. In those cases brought forward by Dr. Gream, there is no evidence to prove that the deaths did not result from the circumstances of the labour, and abundant proof of a disposition to attribute every accident to this new agent.

2. That some unpleasant circumstances have occurred in hysterical and nervous women, during the stage of excitement; but no instance of the alarming or even fatal collapse which has taken place in cases unconnected with pregnancy or parturition. These symptoms disappear in a few moments, if the Chloroform be discontinued, or, as is said, if the dose be increased.

* Med. Times, vol. xvii p. 390.
† Lancet, July 9, 1864.
‡ On the Theory and Practice of Midwifery, 8vo, 1850, p. 251.

3. In a small proportion of cases, the uterine contractions are weakened, rendered less frequent, or even suspended so long as the inhalation is continued, but they return if the use of Chloroform be discontinued.

4. That in the great majority of cases it does not interfere with the labour pains, except by suspending all voluntary exertions, if the insensibility is complete. Where the dose given is milder, although great relief be afforded, the patient will not become insensible, and will be able to exert considerable force.

5. That Chloroform, in full doses, is capable of entirely removing the pain of obstetrical operations, and thereby increasing the facility of their performance; moreover, that the dose may be so graduated as to afford degrees of relief; so that, in natural labour, a certain amount of suffering may be spared, without producing insensibility or incurring the risk, whatever that be, of a full dose.

6. It neither prevents nor weakens the subsequent contractions of the uterus, and, consequently does not render the patient more liable to flooding.

7. That certain women seem more obnoxious to its injurious effects than others, and in some these effects are said to continue some time. Giving full force to these cases, they appear to form a small part of a large number whose recovery was not retarded, and whose subsequent health was uninjured.

839. *Directions for its Use in Midwifery.* No individual practitioner has employed this agent so extensively or so successfully as Prof. Simpson,* and any observations of his on this subject merit especial attention. He furnishes the following directions on the subject:—The two main difficulties, he observes, are to keep the patient in a state unconscious of pain, and yet not so deeply anæsthetized as to have the uterine action interrupted; for too deep a state of anæsthesia, in general, interferes with the force and frequency of the uterine contractions; while a lesser degree of the anæsthetic state leaves the contractions unaffected; and in a still smaller dose it often excites and increases them. The influence of the inhaled agent passes off in a few minutes; and if at any time the anæsthetic effect be too deep, and the uterine action in consequence impeded, all that is necessary is to abstain from exhibiting the Chloroform for a short time, till the parturient contractions have been allowed to come back to their proper degree of strength and frequency; and then the Chloroform may be given as before, by employing the vapour at every recurring pain, but in smaller doses, and for a shorter time than was previously practised.

The quantity of Chloroform required varies both according to the duration of the labour, and the sensibility of the patient. Usually, when the handkerchief is used, about an ounce an hour is necessary; a small quantity being poured upon it from time to time. A less quantity will succeed in some, and others require more. The first quantity which Dr. Simpson pours on the handkerchief is from three to four drachms; but he adds, "I always judge by the *effects*, not by measuring the dose, and I pour on an additional quantity in a minute or so if it be required. In holding the handkerchief towards the patient take care that plenty of atmospheric air is admitted, and never put it in contact with the face." He adds further, "I have usually begun the employment of Chloroform when the os uteri was well dilated, or towards the termination of the first and the commencement of the second stage of labour; but when the pains were severe, I have commenced it earlier, and when the os uteri was still comparatively little dilated. There is, I believe, no limit to the date at which we may give it." To these valuable instructions of Dr. Simpson's we may add that the dose should be administered at the commencement of each pain, and the dose increased when the head is passing over the perinæum. Although the quantity employed must be regulated by the effects produced, it is always advisable to measure the dose, in order that the practitioner may judge of the proportion between the effects and the dose, which may serve, in a degree, as a guide for its administration in other cases. It

* Treatise on Anæsthetic Midwifery, p. 16, et seq.

must be remembered that in using the handkerchief a large quantity of the Chloroform is wasted. If an inhaler be employed, a very much smaller quantity will produce the desired effect.

From the observations of Prof. Simpson, it appears that he induces complete insensibility at first, and keeps up just so much of the effect as he deems advisable. Dr. Rigby, Dr. Snow, and others prefer commencing with small doses in natural labour, and increasing them if necessary; but when manual assistance is required, it is better to place the patient under the full influence at once. Dr. Beatty* observes that, in lingering labours with insufficient pains, the use of Chloroform may be beneficially combined with that of the Ergot.

[The following are the rules for the use of Chloroform in Midwifery laid down by the Committee of the Royal Medical and Chirurgical Society.†

(*a*) *In Natural Labour.*—The careful administration of Chloroform during labour is not attended with special danger, there being, either in this country or abroad, so far as is known to this committee, no well-authenticated instance of sudden death where it has been given by a medical practitioner; but the occasional occurrence of unfavourable symptoms demands the exercise of caution during its employment. Administered in a moderate degree, it does not, as a rule, weaken the expulsive powers, and is decidedly beneficial in promoting dilatation of the maternal passages. It does not predispose to puerperal convulsions or other like complications. The balance of opinion is nearly equal as to whether it predisposes to imperfect contraction of the uterus after delivery. As a rule, it in no way retards the convalescence of the mother, nor has it any tendency to interfere injuriously with the function of lactation; nor has it any injurious influence on the child.

(*b*) *In Abnormal Labour.*—The anæsthetic may be employed with advantage in various obstetrical operations—as forceps, turning, craniotomy, and extraction of retained placenta—unless the patient is much enfeebled by hæmorrhage; when, if given, it ought to be accompanied by the use of stimulants. It may also be employed advantageously to check the paroxysms in puerperal convulsions.

(*c*) *As to the preference of Ether.* There are no reasons for giving preference to Ether over Chloroform, the latter being much more desirable in obstetrical practice generally, the only exceptions being those in which Chloroform notably disagrees.

In addition to the rules given for its administration in ordinary cases, it is generally desirable to observe the following rules during its administration in labour, subject to modifications at the discretion of the practitioner:—In natural labour, begin to give it generally at or after the termination of the first stage; but it may be given earlier if the first stage is unduly painful, or if the os uteri resists dilatation. Give it only during the pains, and withdraw it in the intervals. When the fœtal head bears on the perineum, give it more freely to promote relaxation and relieve the increased pain. Withdraw the Chloroform immediately after the child is expelled. If the patient is depressed or the pains are sluggish during its administration, an occasional stimulant may be administered. In cases where it seems to interfere with the progress of labour it may be necessary to suspend its use for a time, and re-apply it after an interval, or even to withdraw it altogether. In turning and instrumental deliveries deep anæsthesia must be induced, as in surgical operations, and the administration should then be entrusted to a competent person, whose sole duty should be to attend to it. In midwifery a special inhaler for its administration is not generally necessary or desirable, a handkerchief or towel, so folded as to prevent blistering the face and to allow free admixture of atmospheric air, being sufficient for the purpose.]

* Dublin Quarterly Journal, Aug. 1859.

† Med. Times and Gazette, July 16, 1864.

840. *As a means of Diagnosis in Spurious Pregnancy*, the importance of Chloroform was first pointed out by Professor Simpson,* who remarks that, "generally speaking, Chloroform will in any case of doubt solve the difficulty completely, if only given deep enough. When the patient is fairly put to sleep with Chloroform, the tense abdominal muscles become perfectly relaxed, and on pressing on the abdomen you will find that the walls will give way before your hand, and sink backwards till you can feel the spinal column quite distinctly, and you will then find the uterus to be of the normal size." The examination should be made whilst the patient is fully under the influence of the anæsthetic; for when she comes out of her sleep again, in a case of spurious pregnancy, the muscles begin to contract and to become tense as before, so that by the time the patient is fully awake, the abdomen is as large and rounded as before. The value of anæsthesia as an adjuvant in aiding and establishing a correct diagnosis in such cases cannot be overrated.

841. *The Objections which have been urged against the use of Chloroform in Midwifery* by Dr. Gream† and others, are—1, that anæsthesia from these agents (Chloroform, Ether, &c.) is no more or less than drunkenness; 2, that it gives rise to indecent dreams, expressions, and actions; 3, that it induces convulsions; and 4, that it may cause death. The force of these propositions has, however, been weakened by the almost unanimous evidence of those who have employed these agents the most extensively.

842. *Post-mortem appearances.* In five deaths from Chloroform, post-mortem examination showed no particular congestion of the head or brain: the lungs were greatly congested in two cases, and more or less so in the other three. The cavities of the heart were quite empty in two cases, but this might be attributed to other causes; and in both these air was found in the veins.

843. *Therapeutic Uses. In Spasmodic Asthma*, the inhalation of Chloroform has been successfully employed by Dr. Day,‡ Mr. Beardsall,§ Mr. Chandler,‖ and others. A profound sleep generally follows its exhibition. Dr. Todd,¶ who also speaks favourably of its use, advises that it should be administered gradually and cautiously, and not in a full dose, so as to produce profound insensibility, especially if there be any blueness of the surface, or any other symptoms indicating venous congestion. It should always be administered by a medical man, and never by a patient to himself.

844. *In Puerperal Convulsions*, Dr. R. B. Todd** employed Chloroform in numerous cases with manifest benefit. Other cases successfully treated by it are recorded by Mr. Clifton.†† Prof. Simpson states that in 200 women whom he delivered under Chloroform, he had not met with a single instance of convulsions; from this it appears that it may in a degree act as a preventive to their occurrence. Testimony to its value in controlling the paroxysms of puerperal convulsions has also been borne by Dr. Murphy, Dr. Braxton Hicks, and others.‡‡ The administration of Chloroform has been productive of benefit in Eclampsia, even

* Med. Times and Gaz., Sept. 10th, 1859.

† On the Misapplication of Anæsthesia in Childbirth, Lond. 1848.

‡ Brit. and For. Med. Chir. Rev., April 1849.

§ Lancet, March 31, 1849.

‖ Med. Gazette, Nov. 1847.

¶ Ibid. Dec. 1850.

** Ibid. May 11 and 18, 1849.

†† Ibid. vol. xvii. p. 335.

‡‡ Med. Times and Gazette, July 4, 1863.

although a temporary albuminous condition of the urine was present. It would, however, be contra-indicated if serious disease of the kidneys were believed to exist.

845. *In Infantile Convulsions*, Chloroform has been successfully employed by Dr. Robertson, of Edinburgh; by Mr. Ceeley,* of Aylesbury, and others. It is stated to have met with decided success.

846. *In Epilepsy*, both during the paroxysm and in the interval, Chloroform has been administered by Dr. Todd;† and the general conclusions which he draws are—1, that the frequent employment of Chloroform does no harm to the brain; 2, that it undoubtedly diminishes the frequency of the fits; and 3, that it exercises a very marked control over the maniacal state.

847. *In Laryngismus Stridulus*, anæsthesia is occasionally employed with marked benefit. In a case related by Mr. Image,‡ Ether inhalation was attended with the best effect. Dr. Reid § also advises its employment.

848. *In the Cough and Dyspnœa of Phthisis*, Mr. Wells‖ found the employment of Chloroform signally beneficial. It was given in a dilute form (1 part of Chloroform and 4 or 6 of Eau de Cologne), at first about half a drachm of this mixture being used three or four times a week, but subsequently it was used in the pure form. It was never given in such quantities as to produce anything like insensibility, but it never failed to afford a very great amount of relief and comfort.

849. *In Chorea*, M. Gassier ¶ successfully employed Chloroform frictions in three cases. He used a liniment composed of equal parts of Chloroform and Oil of Almonds, which was well rubbed night and morning along the course of the spine. In none of the cases in which it was used does there appear to have been any organic disease of the nerves or nervous centres.

850. *In Tetanus, both Idiopathic and Traumatic*, Chloroform has been employed, and in many instances has apparently contributed to the recovery of the patient. Cases successfully treated by it are recorded by Dr. Ogier,** M. Petit,†† Mr. Slowman,‡‡ Mr. Baker, and others. It appears certain that no treatment hitherto practised has been so generally successful as the inhalation of Chloroform; at the same time, it must be confessed that it often fails to arrest the fatal termination. Dr. Todd §§ advises that the Chloroform should be given in small and frequently repeated doses, with a large admixture of air, so as to

* Loc cit.
† Op. cit.
‡ Ranking's Abstract, vol. v. p. 389.
§ On Infantile Laryngismus, 8vo, 1848.
‖ Med. Times, Oct 11, 1851.
¶ Med. Gazette, Nov. 15, 1850.
** Med Times, vol. xviii ; p. 111.
†† Rev. Méd.Chir., Dec. 1848.
‡‡ Provincial Journal, Sept 5, 1849.
§§ Med. Gazette, Nov. 29, 1850.

produce a gradual and soothing effect. Chloroform frictions have also been found effectual by Dr. Morrisseau.

851. *In Colica Pictonum*, M. Aran* gave Chloroform internally in 8 cases. In 5, the pain disappeared permanently; in 3, the relief was only temporary. He employed a mixture of 40 parts of Chloroform and 130 of water and syrup. Of this, the dose is a teaspoonful, repeated according to the urgency of the case. He also administered it in the form of enema, and compresses moistened with dilute Chloroform were applied to the abdomen.

852. *In Spasmodic Hiccough*, M. Latour† employed the inhalation of Chloroform, with the effect of causing an immediate cessation of the spasm, which had continued upwards of three hours. Chloroform given internally in the form of Chloric Ether (Sp. Chloroformi) is an excellent sedative in *Nervous and Hysterical Vomiting*.

853. *In Spasmodic and Irritable Stricture of the Urethra*, Chloroform affords more speedy and certain relief than any other mode of treatment. The extreme irritability of the parts, the sudden and persistent spasm which so often prevents the introduction of a bougie, are removed under the inhalation of Chloroform, and the disease is rendered not only more manageable, but more easy of ultimate cure. The benefit derived from Chloroform in these cases is very marked.

854. *In Neuralgic Affections, Tic Douloureux, &c.*, the external application of Chloroform over the seat of pain often affords speedy and permanent relief. M. Leriche,‡ of Paris, relates a severe case of neuralgia of the cervical plexus, which entirely yielded to frictions with Chloroform (mxv. at each application); and M. Moreau§ relates three cases of *Lumbago* permanently relieved by the same means. The application causes a sharp burning pain, which, however, soon subsides. It proves but a palliative when the neuralgia arises from, or is symptomatic of derangement of the digestive or uterine systems. Mr. Little, of Singapore,‖ speaks favourably of its use as a counter-irritant in these cases, applied much in the same manner as has been practised with Liquor Ammoniæ (sect. 195). *In Nervous and Hysterical Headache*, Chloric Ether (Spiritus Chloroformi) in doses of mx.—mxx. is one of the most useful anodynes that can be administered internally.

855. *In Toothache*, Chloroform, applied on a piece of cotton to the painful tooth, will frequently afford instant relief. Mr. Tomes¶ advises a small piece of gum-mastic to be dissolved in a few drops of Chloroform; the fluid is thus rendered thick, and

* Brit. and For. Med. Chir. Rev., April 1851.
† L'Union Médicale, Dec. 30, 1847.
‡ Gaz. des Hôpitaux, Feb. 3, 1849.
§ Ibid. 1848.
‖ Edin. Med. Journ., April 1860.
¶ Med. Times, Dec. 2, 1848.

it is immediately to be inserted into the hollow tooth on a small bit of cotton wool. It affords great relief, and will remain in the tooth for a considerable time.

856. *In Delirium Tremens, in furious Madness, and in some forms of Insanity*, Chloroform has been administered in some instances with benefit; but its applicability and safety as a general remedy have not yet been established by extensive experience. Its administration in these cases demands especial caution. Dr. Laycock * remarks that it has been administered in very violent cases with advantage, when exhaustion is likely to come on from the constant raving and struggles of the patient: in these cases it may save life by saving strength.

857. *Other Diseases. In Cholera*, Chloroform has been successfully employed by Mr. Brady, of Harrow, by Mr. Plummer, Mr. Boyton,† and others. In these cases it was given internally, in doses of ♏vj.—x. every hour or half-hour, according to the severity of the symptoms. Mustard poultices and other counter-irritants were applied externally. The real value of Chloroform in this disease is yet to be determined.

858. *In Dysmenorrhœa*, Dr. Bennett ‡ has found Chloroform useful, both by inhalation and given internally. In the latter case gutt. x. were given in mucilage.

859. *In Strangulated Hernia*, Chloroform is of the highest service. It was first employed in these cases by Mr. H. Hancock,§ of Charing-cross Hospital, and has since proved signally successful in numerous instances. During anæsthesia, the constricted parts have been found to be relaxed to such a degree that, with little or no manipulation, the reduction has been effected. An operation should always be delayed until a fair trial has been given to Chloroform, if it can be procured without much loss of time. On this point, Prof. Miller § observes, that it saves pain, produces thorough relaxation, does not aggravate the already begun collapse, is perfectly manageable, quickly passes off when no longer wanted, and leaves no untoward effect behind. He places it on a par with Opium, and thinks that their use may be well conjoined.

860. *In the reduction of Dislocations*, whether recent or long standing, the inhalation of Chloroform, so as to induce complete anæsthesia, may be had recourse to with the most decided benefit. It relaxes the whole muscular system, thus allowing of a more ready reduction than could otherwise be effected, and renders the patient insensible to pain (see *ante*). Instances of its successful employment may be found in abundance in the medical journals of the day.

* Edin. Med. Journ., Nov. 1862.
† Med. Times, vol. xviii. and xix.
‡ Lond. Journ. of Med., March 1850.
§ Med. Gazette, Feb. 16, 1849.

861. *Gonorrhœa*, M. Venot * recommends injections of Chloroform, as a means of arresting the disease in its earliest stage; and he considers that it will replace Argent. Nit., which is now so frequently employed to cut short the disease. Pure Chloroform is injected by a glass syringe, the perinæum being pressed upon; the first effect is burning heat, afterwards a sensation of coldness. The injection is less effectual after the disease has existed two or three days; but if employed before that time, it is stated almost invariably to arrest it.

862. *In Irritable Ulcer of the Rectum*, an ointment containing Chloroform is spoken highly of by Mr. Curling,† particularly when the ulcer is very sensitive. He employs the following formula:—℞ Chloroform. f℥j.—f℥ij., Zinci Oxid. ℥ss., Ol. Olivæ f℥j., Cerat. Cetacei ℥iv., M. ft. ung.

863. *In Scirrhus of the Stomach*, Dr. Corfe ‡ states that he has derived much benefit from the following formula:—℞ Chloroform. ♏v., Liq. Morphiæ Hydrochlor. (P.L.) ♏ij., Liq. Hydrarg. Bichlor. (P.L.) ♏x., Mist. Camph. f℥iss., M. ft. haust.

864. *In the Passage of Gall Stones*, Dr. Thudichum strongly recommends that anæsthetics (Chloroform or Ether) should be administered, either by the stomach or by inhalation, in small doses repeated till an effect is produced (Ranking §).

865. *In Prurigo Scroti, and in Scabies and Psora where they attack the Scrotum*, Dr. Corfe,‖ found the irritation more effectually soothed by a lotion composed of f ℥ij.—f ℥iv. of Chloroform in Oj. of water than by any other remedy.

866. CHONDRUS CRISPUS. Carrageen, or Irish Moss. *Nat. Ord.* Algæ. *Linn. Syst.* Cryptogamia. *Hab.* The western coast of Ireland. It contains about 79 per cent. of *vegetable mucilage* or *pectin* (*Carrageenin*), the Chlorides of Sodium and Magnesium, and a trace of Bromine and Iodine. (Grosse.)

Med. Prop. and Action. Nutritive and demulcent. It is best given in the form of decoction or of jelly. The decoction is made by macerating ℥ss. of the Moss in warm water for ten minutes, and boiling in Oiij. of water for fifteen minutes; flavour to the taste. The jelly is made by adding sugar to the above decoction, and boiling until it assumes a gelatinous form.

867. *Therapeutic Uses. In Scrofulous Affections, Phthisis, Diarrhœa, Rickets, Mesenteric Diseases, and Calculous Affections*, Irish Moss is a highly-esteemed popular remedy; but, beyond its nutritive properties, it is of little or no value.

* Med. Times, April 19, 1851.
† Brit. For. Med. Chir. Rev., Oct. 1851.
‡ Med. Times, vol. xviii.
§ Abstract, xxxvii. p. 275, 1863.
‖ Med. Times, vol. xviii. p. 304.

868. Chromic Acid. Acidum Chromicum. CrO_3. Occurs in the form of brilliant crimson-red prisms, very deliquescent and readily soluble in water.

Med. Prop. and Action. Powerful caustic; used in substance made into a paste with water, its action is exceedingly slow and gradual, but deeply penetrating. In saturated solution its action is less penetrating and less gradual. By using a solution more or less dilute, the action may be graduated according to the degree of effect desired. It is a powerful oxidizer, yielding its oxygen readily to organic matter, which is thereby dissolved. Smaller animals (mice, birds, &c.) were so completely dissolved by the acid in fifteen or twenty minutes that no trace of their bones, skin, hair, claws, or teeth could be discovered. It is not given internally.

869. *Therapeutic Uses. In Cancerous and other Ulcerations*, in which a deeply penetrating gradual caustic is desired, Chromic Acid appears to be specially indicated. The trials of Dr. Ure,* Sigmund, Heller,† and others have proved its efficacy and safety. The pain attendant on its use is incomparably less than that caused by Sulphuric or Nitric Acid, Vienna paste, &c., not even disturbing the patient's sleep. From its deeply penetrating action, however, much care is necessary in its use, and it should in no case be laid over a surface to be cauterized in a layer deeper than a line in thickness. The surrounding parts require to be carefully protected by folds of lint, strips of plaster, &c. Its tendency to penetrate too deeply is the great objection to its use. Sigmund employed with advantage a concentrated solution for the destruction of *Syphilitic Condylomata*, and Mr. Marshall‡ found it effectual for removing *Warts and other Morbid Growths from the Genital Organs*. The solution employed was of the strength of 100 grains to f℥j. of distilled water. It has also been employed for the removal of *External Hæmorrhoids*. Dr. Hairion§ employed it with advantage in the treatment of *Obstinate Granular Ophthalmia*. He applied a solution of equal parts of the acid and distilled water by means of a camel's-hair brush, at intervals of four, six, or eight days. Although he states that the application is neither very painful nor followed by any great amount of reaction, it admits of a great doubt how far so deeply a penetrating caustic can with safety be applied to so delicate an organ as the eye.

Cicuta. See Conium.

Cimicifuga Racemosa. See Actea Racemosa.

870. Cinchona. (Cortex.) The varieties of Cinchona Bark are obtained from different species of Cinchona. *Nat. Ord.* Cinchonaceæ. *Linn. Syst.* Pentandria Monogynia.

* Med. Gazette, March 20th, 1845, p. 787.

† Dublin Quart Journ. of Med. Feb. 1852, p. 250.

‡ Cited in U.S. Disp., p. 1392.

§ Gaz. Hebd. de Méd., Jan. 7th, 1857

The Officinal Cinchona Barks are:—

1. Cinchona flava. Yellow Cinchona Bark. Obtained from Cinchona calisaya. *Hab.* Bolivia and Southern Peru. Chief active principle, Quinine. 100 grs. should yield not less than 2 grs. of Quinine.
2. Cinchona pallida. Pale Cinchona Bark. Obtained from C. condaminea. *Hab.* Loxa in Ecuador. Chief active principle, Cinchonine. 200 grs. should yield not less than 2 grs. of alkaloids.
3. Cinchona rubra. Red Cinchona Bark. Obtained from C. succirubra. *Hab.* The western slopes of Chimborazo. Active principles, Quinine and Cinchonine, in about equal proportions. 100 grs. should yield not less than 2 grs. of alkaloids.

Other varieties:—

Fibrous Carthagena Bark. Spongy, or Orange Carthagena, or Bogota Bark. Obtained from C. condaminea (var. δ lancifolia). *Hab.* Near Bogota in New Granada. Active principles, Quinine, much Quinidine, some Cinchonine.

Cinchona Cinerea. Silver, grey, or Huanuco Bark. Formerly officinal in the Edin. and Dub. Pharm. Obtained from C. micrantha and C. nitida. *Hab.* Cuchero and Huanuco in Northern Peru. Active principles, Quinine, Quinidine, and Cinchonine.

Attempts are being made to cultivate the more valuable species of Cinchona plants in India, Ceylon, Java, Jamaica, and Trinidad.

The Acids of the Cinchona barks are the Quinic or Kinic, the Cincho-tannic, the Red Cinchonic, and the Kinovic. The alkaloids are Quinia or Quinine, Cinchonia or Cinchonine, Quinidina or Quinidine, and Cinchonidina or Cinchonidine.

Med. Prop. and Action. All the varieties of Cinchona are tonic, astringent, and anti-periodic, and are, of all medicines of their class, the most powerful and uniform in their action. They owe their astringency to the presence of Cincho-tannic and red Cinchonic Acids. Their tonic and anti-periodic properties are due to the alkaloids in which they abound. Peculiarity in the action of the different kinds of bark depends on the proportion in which the alkaloids are present in them. From the large quantity which is required to be taken to obtain the full effect, and from the extremely nauseous taste, there are many persons who are unable to take Cinchona, without its causing derangement of the stomach, vomiting, headache, and in most cases, constipation, in consequence of the Cincho-tannic and red Cinchonic Acids which it contains. These ill effects may, in a great measure, be obviated by administering its alkaloids, Quinine or Cinchonine; from both of which, as a rule, all the benefit (with the exception of the astringent effect) which is to be expected from Cinchona may be obtained, without its disadvantages. Occasionally, however, it happens that where the alkaloids fail to effect a cure, Cinchona in substance is successful. In small doses bark improves the appetite, and the general tone of the muscular and circulating systems. It checks colliquative sweating in cases of extreme debility. Its action on the nervous system is shown by its extraordinary power in arresting diseases of a periodic character. In the treatment of *intermittent fevers*, it may either be given in a large dose shortly before the recurrence of the paroxysm, or in smaller repeated doses during the

intervals. The efficacy of the infusion or decoction is greatly increased by the addition of a few drops of dilute Sulphuric Acid. (See also QUINIÆ SULPHAS.) Externally applied bark is an astringent and antiseptic. It is sometimes sprinkled on the surface of *unhealthy ulcers*. The infusion or decoction, with the addition of a mineral acid, forms a valuable gargle in *putrid sore throat*. Powdered bark is useful as a dentifrice in spongy conditions of the gums.

Offic. Prep. of Cinchona flava :—

1. Quiniæ Sulphas (see art. Quinia).

2. Decoctum Cinchonæ Flavæ (Yellow bark in coarse powder oz. j. ; Distilled Water Oj. ; boil for ten minutes and strain through calico. Sufficient Distilled Water to be added to make fl. oz. xvj.). Dose, fl. oz. j.—fl. oz. ij.

3. Extractum Cinchonæ Flavæ Liquidum (Yellow Cinchona Bark in coarse powder lb. j. ; Distilled Water q. s. ; Rect. Sp. fl. oz. j. Prepared by maceration, percolation, and evaporation). Sp. Gr. about 1·100 ; fl. oz. iv. represent lb. j. of bark. Dose, ℥x.—fl. drm. j.

4. Infusum Cinchonæ Flavæ (Yellow Cinchona Bark in coarse powder oz. ss. ; Boiling Distilled Water fl. oz. x.). Dose, fl. oz. j.—fl. oz. ij.

5. Tinctura Cinchonæ Flavæ (Yellow Cinchona in coarse powder oz. iv. ; Proof Spirit Oj. Prepared by maceration and percolation). Dose, fl. drm. j.—fl. drs. ij.

Of Cinchona Pallida :—

Tinctura Cinchonæ Composita (pale Cinchona Bark in coarse powder oz. ij. ; Bitter Orange Peel oz. j. ; Serpentary oz. ss. ; Saffron grs. lx. ; Cochineal in powder grs. xxx. ; Proof Spirit Oj. Prepared by maceration and percolation). Dose, fl. drm. j.—fl. drs. ij.

Dose of either of the Cinchona Barks, gr. x.—gr. lx., or more.

Incompatibles. Tartar Emetic ; the salts of Iron, Lead, and Silver ; all infusions containing Tannic Acid or Gelatine ; and Liq. Arsenicalis.

Therapeutic Uses are considered at length under QUINIÆ DISULPHAS (which see).

871. CINCHONIA. Cinchonine. An alkaloid found chiefly in the pale varieties of Cinchona. *Chem. Form.* $C_{40}H_{24}N_2O_2$. In the form of the Sulphate $(C_{40}H_{24}N_2O_2,HO,SO_3 + 2\,HO)$ its action is similar to that of Quinine ; but it is less energetic, and consequently requires to be given in larger doses : it is, however, occasionally substituted for it. The Hydrochlorate of Cinchonine has also lately come into use.

Med. Prop. and Action. Tonic and anti-periodic.

Dose of the Sulphate of Cinchonine, gr. j.—gr. x., or more. Dose of the Hydrochlorate of Cinchonine, gr. j.—gr. x.

872. *Therapeutic Uses. In Intermittent Fevers* much has been written on the anti-periodic powers of this agent. The recent researches of Dr. Moutard-Martin* have served to place its character in its true light. He deduces from extensive experience the following conclusions :—1. Sulphate of Cinchonia, administered for *Intermittent Fever*, has an unquestionable but variable action. 2. Sometimes its action is rapid, and it arrests the paroxysms like Quinine ; at other times it is slow, whatever the dose exhibited, and the paroxysms cease gradually. 3. The dose must always be larger, at least by one-third, than that of Qui-

* Medical Circular, 1860.

nine. 4. To obtain its curative action, a dose, ranging from gr. x. to gr. xv., must be used according to circumstances. 5. At this dose it sometimes induces certain physiological effects which it would not be prudent to exaggerate. 6. Its therapeutic action is not in proportion to its physiological effects, for it sometimes cures without the latter being manifested; on the other hand, the physiological effects may be energetic, and yet it may fail to cure. 7. It cannot replace Quinine in severe intermittents. 8. It may become a valuable adjunct to Quinine, in completing a cure commenced by the latter. This combination would secure certainty of treatment with economy. Testimony to the value of the Hydrochlorate of Cinchonine in the treatment of ague has lately been borne by Mr. C. G. Taylor.* Dr. Garrod† states that he has had abundant evidence that peculiar effects often result from Cinchonia Salts, which are not produced by the same amount of the corresponding Salts of Quinine.

873. *In Neuralgia*, it was found by Dr. Pepper‡ to succeed when Quinine had failed. *In Gastralgia* it proved successful in the hands of Dr. Franchini, who found it serviceable also in hysterical nervous affections. *In Conditions of Debility* it is largely prescribed in some of the London hospitals as a substitute for Quinine.

874. CINCHONIDINA. Cinchonidine. An alkaloid found in Cinchona Barks. It is isomeric with Cinchonine ($C_{20}H_{24}N_2O_2$) The Sulphate of Cinchonidine ($C_{40}H_{24}N_2O_2HO,SO_3$) is occasionally employed in medicine.

Med. Prop. and Action. Believed to be similar to those of Cinchonine, but a further examination of its effects is required.

Dose of the Sulphate of Cinchonidine, gr. j.—gr. x.

875. CINNAMOMUM. Cinnamon. The Bark of Cinnamomum Zeylanicum. *Nat. Ord.* Lauraceæ. *Linn. Syst.* Enneandria Monogynia. *Hab.* Ceylon, Java, and cultivated in Malabar in the Madras Presidency.

Med. Prop. and Action. The bark and oil (*Oleum Cinnamomi*) obtained by distillation from it, are aromatic, stimulant, and carminative. The bark is also astringent. By the Germans Cinnamon is considered to act specifically upon the contractile fibres of the uterus. It is chiefly used as an adjunct to other remedies. Besides the essential oil Cinnamon contains Tannic Acid, also a resin and an acid (*Cinnamic Acid*).

Offic. Prep. 1. Aqua Cinnamomi (Cinnamon bruised oz. xx ; Water Cij ; distil Cj.). Dose, fl. oz. j.—fl. oz. ij.

2. Oleum Cinnamomi (obtained from the bark by distillation). Dose, ♏j.—♏v.

3. Pulvis Aromaticus (Cinnamon oz. iv.; Nutmeg oz. iij. ; Saffron oz. iij. ; Cloves oz. iss. ; Cardamoms, free from their capsules, oz. j. ; Refined Sugar oz. xxv.). Dose, gr. x.—gr. xxx.

* Lancet, Nov. 21, 1863.

† Essentials of Materia Medica and Therapeutics, p. 227.

‡ Amer. Journ. of Med. Sci., Jan. 1856.

§ Ann. de Thérap., 1856, p. 141.

4. Tinctura Cinnamomi (Cinnamon in coarse powder oz. iiss. : Proof Spirit fl. oz. xx. Prepared by maceration and percolation). Dose, fl. drm. j. —fl. drs. ij.

5. Tinctura Lavandulæ Composita (see Lavandula).

Dose of the Bark in powder, gr. v.—gr. xx.

876. *Therapeutic Uses. In Flatulence, Colic, and Spasmodic Affections of the Bowels*, the T. Cinnam. Co (Ph. L.) (Cinnam. cont. ʒj. ; Cardam. cont. ʒss. ; Piperis long. cont. ʒiiss. ; Zingib. cont. ʒiiss.; Spirit. Ten. Oij.), in doses of fʒss. to fʒij., proves a grateful and efficient carminative.

877. *In Atonic Diarrhœa*, the powder, in combination with Chalk and Opium, is often given with marked advantage.

878. *In the low stages of Fever*, the essential Oil is a valuable adjunct to other stimulants. The T. Cinnam. Co. (Ph. L.) is a goop formula.

879. *In continued Nausea and Vomiting*, a watery infusion of the Bark is often effectual in removing these states.

880. *In Uterine Hæmorrhage*, it has been employed, but with very doubtful advantage. Of late years its use has again been advocated by Dr. Tanner,* who considers that its action is really due to some specific effect which it exercises upon the uterus, and not to any astringent property which it may possess. He advises the Tincture in fʒj. doses, given in Cinnamon water every six hours. *In Tedious Labours depending upon Atony of the Uterus and insufficiency of Uterine Contractions*, it was found effectual by Mursinna, and Dr. Tanner's experience tends to confirm the idea of its powers in these cases.

881. A drop of the Oil introduced into a carious tooth occasionally arrests *Toothache*.

882. Citric Acid. Acidum Citricum. $3\,HO,C_{12}H_5O_{11}+HO$. It exists largely in the juice of the Lemon, Lime, and Orange ; and is also found in smaller quantities in the juice of the Grape, Tamarind, Gooseberry, Currant, and other fruits.

Med. Prop. and Action. Refrigerant and anti-scorbutic. Citric Acid, observes Dr. Thompson, as prepared by the hand of nature in the juice of the lemon, orange, &c., is more grateful than in its uncombined state,—a fact which is quickly perceived by patients in fever. When simply diluted with water, Citric Acid constitutes a most serviceable and agreeable beverage *in fevers, and in those of a typhoid character.* This is rendered more grateful and refreshing by using water impregnated with carbonic acid gas instead of common water. In the ordinary condition of the stomach, Citric Acid, either pure or combined, does not weaken the stomach ; and in some irritable states of that organ, characterised by a sensation of heat, painful digestion, an unpleasant taste in the mouth, and a disgust for food, it removes these symptoms, and proves decidedly beneficial ; but, on the other hand, when the stomach is highly irritable, and its nervous susceptibility great, Lemon-juice, or Citric Acid, even when largely diluted, causes heat, uneasiness, pain, and not unfrequently obstinate vomiting. Nevertheless, as M. Broussais† has remarked,

* Lancet, Oct. 15th, 1853.

† Phlegmas. Chron. t. iii. p. 254.

the Citric is that acid which the stomach supports the best when suffering from inflammation. The citrates of Potash and Ammonia are refrigerant and slightly diuretic; those of Soda and Magnesia purgative. The following table shows the equivalents required for making effervescing draughts:—

grs.		grs.		
20 of Carb. of Soda	=	9¾ of Citric Acid,	or fl. drs. iiss. of Lemon-juice.	
,, Bicarb. of Soda	= 17	,,	,, fl. oz. ss.	,,
,, Carb. of Potash	= 17	,,	,, fl. oz. ss.	,,
,, Sesq. of Ammonia	= 24	,,	,, fl. drs. vj.	,,

Incompatibles. Alkalies and their Carbonates, Sulphates, and Tartrates; Carbonates of Earths and Metals; Acetates.

883. *Therapeutic Uses. In Fevers*, it proves a useful and grateful refrigerant. In some irritable states of the stomach it affords, in many instances, a great amount of relief; and in Scurvy, it has been used with great advantage, although inferior to Lemon-juice. (See CITRUS LIMONUM.)

884. CITRUS LIMONUM. CITRUS MEDICA. The Lemon Tree. *Nat. Ord.* Aurantiaceæ. *Linn. Syst.* Polyadelphia Polyandria. *Hab.* Southern Europe, East and West Indies, the Azores, &c.

CITRUS LIMETTA. The Lime Tree, found in most tropical countries.

Med. Prop. and Action. The juice of the fruits of these trees, known respectively as Lemon-juice and Lime-juice, is refrigerant and sedative; the peel of the fruit dried, is an aromatic bitter, and forms an elegant adjunct to other vegetable tonics. The volatile oil obtained from the rind (oil of lemons) is stimulant and acrid; it is rarely used in medicine. That which is commonly sold as Essential Salts of Lemons is the Binoxalate of Potash, and does not exist in any of the Lime-tribe: it is a misnomer, which might lead to serious mistakes. Lemon-juice contains Citric Acid, and Malic Acid in combination with potash, and mucilage. In the article Citric Acid, the refrigerant property of Lemon-juice has been considered, but it has other qualities which deserve notice. Dr. Owen Rees found that Lemon-juice, in doses of ℥j. thrice daily, caused a great depression of the heart's action: in one case it fell from 120 to 75; in another from 110 to 74; the pulse, at the same time, being rendered smaller. These effects were observed in patients suffering from acute Rheumatism, but the same effect was observed in the healthy body: thus, a clinical clerk took f ℥j. of Lemon-juice thrice daily for three days, and carefully noted his pulse, which was naturally full, and about 75 in the minute. After five doses the pulse became much weaker, was more compressible, and numbered 70 in the minute. On the third day the pulse became as low as 66, and was very small and compressible. The urine was always acid, and also natural in quantity, till the third day, when it increased somewhat; the Sp. Gr. was then 1·017, and there was a deficiency of Lithic Acid. (See ACIDS, part ii.) *As an antidote to acro-narcotic poisons*, Lime or Lemon-juice is often very effectual. Its *modus operandi* is obscure, but its effects are often very remarkable. In over-doses of Croton seeds (Croton Tiglium), I have witnessed almost immediate cessation of the vomiting, purging, and pain, from a single draught of Lime-juice. Both Lemon and Lime juice possess most valuable anti-scorbutic properties.

Offic. Prep. Of the Peel (Cortex Limonis):—

1. Syrupus Limonis (Fresh Lemon-peel oz. ij.; Lemon-juice strained Oj.; Refined Sugar lb. ij. ¼). Dose, fl. drm. j.—fl. drs. ij., or more.

2. Tinctura Limonis (Fresh Lemon-peel oz. iiss.; Proof Spirit Oj. Prepared by maceration and percolation). Dose, fl. drm. j.—fl. drs. ij.

Of the Juice (Succus Limonis). Syrupus Limonis.

Of the Oil (Oleum Limonis). Spiritus Ammoniæ Aromaticus (see art. Ammon. Sp. Arom.).

Dose of Lemon-juice, fl. drs. ij.—fl. oz. j., or more.

885. *Therapeutic Uses. In Acute Dysentery and Diarrhœa*, Lime-juice has occasionally appeared to have been of service. In an able paper, Dr. W. Fergusson* quotes numerous authorities, and his own experience, in favour of the opinion, that the juice of the Lime and Lemon, so often considered as a cause of these diseases, is, in reality, an important means of cure. Amongst others, he quotes a letter from Dr. O'Connor, who states that, in the disease called "*Bische*," in Trinidad, and which appears to be identical with very acute Dysentery, the natives constantly and successfully employ suppositories, the base of which is the Lime or Lemon, with strong Lemonade for drink. This constitutes the sole treatment. He also instances Dr. Denger, of Nimeguen, who, in his account of the epidemic Dysentery in that town, in 1736, successfully employed large and repeated doses of Lemon-juice. Dr. Zimmermann,† likewise, found in the Dysentery epidemic in Switzerland, in 1765, that the juice of acid fruits was of "prodigious use," and apparently tended to the recovery of the patients. In addition to this, I may add that the remedy commonly in use amongst the Burmese of the Tenasserim Provinces, for bilious Diarrhœa, is Lime-juice, which they take in large quantities. The value of this remedy merits further investigation.

886. *In the Vomiting of Pregnancy*, Dr. Dewees‡ states that where alkalies have failed to afford relief, he has often employed Lemon-juice with decided advantage. He mentions some cases in which its utility was unequivocal. It is also occasionally effectual in *Heartburn*.

887. *In Scurvy*, Lime-juice is of the utmost value. Since the introduction of this article into the regular rations of sailors, Scurvy has become a rare disease, compared, at least, with what it was previous to the introduction of this remedy by Sir Gilbert Blane. As a preventive to Scurvy, it is of the greatest importance; and when the disease, from the neglect of proper precautions, has appeared, there are few, if any, more efficacious remedies. The validity of Dr. Garrod's theory that it owes its efficacy to the presence of the Salts of Potash has been questioned; he, however, adheres to it in his last published work.§

888. *In Dropsy and Dropsical Affections*, Lemon-juice has been found very successful by Drs. Schwabe, Drechsler, and others.

* Ed. Med. and Surg. Journ., Oct. 1, 1837.

† On the Dysentery of Switzerland, Lond. 1771, p. 87.

‡ On Dis. of Females, p. 210.

§ Essentials of Mat. Med. and Therap., p. 172.

Several instances are mentioned by these physicians, in which cures were effected solely by its use, and that, too, when other remedies had failed. Dose, a tablespoonful thrice daily; and, in one instance, the dose was increased to six tablespoonfuls. It proved, in every case, powerfully diuretic.*

889. *In Acute Rheumatism and Rheumatic Gout*, Lemon-juice has recently been extensively employed; and it is stated on competent authority to be a speedy and efficacious remedy. The dose is f℥j.—f℥ij. every four or six hours. Dr. Owen Rees,† of Guy's Hospital, states that, in his practice, he has employed it with the greatest success; and that the relief from pain, in the majority of cases, was such, that had any one not acquainted with the remedy in use, watched the progress of the case, he would have concluded that sedatives had been employed. Dr. Rees considers that it acts, in common with all vegetable acids, by effecting a transformation of the tissues generally (÷). The remedy appears greatly to depress the heart's action; the pulse, in one instance, being reduced from 120 to 75. The urine was rendered alkaline by its use; and in one case, in which the urine was alkaline before treatment, it became acid after the juice had been employed. Its value in these cases is also attested by Dr. Golding Bird, Mr. Middleton, Dr. Ranking, Mr. Dalrymple,‡ and others. There are, however, two forms of Rheumatism in which Dr. Rees§ states Lime-juice has been found to fail—1, that occurring in cachectic subjects, which he designates Cachectic Rheumatism; and 2, that attendant on Syphilis.

890. *In Pruritus Scroti and Pruritus Ani*, Lemon-juice is often an effectual remedy. The parts should be first bathed in hot water, and afterwards the Lemon-juice should be freely applied. When the pain and smarting caused by the application subsides, great relief will be experienced. Dr. Oppler‖ relates an obstinate case, which had resisted all external and internal remedies for ten weeks, but which yielded rapidly and completely to the application of diluted Lemon-juice.

891. *In Febrile and Inflammatory Diseases*, an agreeable refrigerant beverage is formed by macerating two sliced Limes or Lemons and oz. ij. of Sugar in Oj. of boiling water. When cool, it should be strained and drank *ad libitum*. For observations on its use, see CITRIC ACID.

892. CITRUS AURANTIUM. The Common, or Sweet Orange. *Hab.* Azores, India, &c.

* Lancet, 1842-3, p. 459.
† Med. Gazette, Jan. 25, 1849, and Ed. Monthly Journ., Aug. 1849.
‡ Lancet, September, 1850.
§ Ibid. Dec. 14, 1850.
‖ Berlin Med. Zeitung, June 30, 1841.

CITRUS BIGARADIA. The Seville, or Bitter Orange. *Hab.* Southern Europe. *Nat. Ord.* Aurantiaceæ. *Linn. Syst.* Polyadelphia Polyandria.

AURANTII FLORIS AQUA. Orange Flower Water. The Distilled Water of the Flowers of the above species. Prepared in France.

Med. Prop. and Action. The rind of the fruit of both the Sweet and Bitter (*offic.*) Orange is aromatic, bitter, and tonic, and forms an agreeable adjunct to other tonics. The oil distilled from the flowers, known as Oil of Neroli, is stimulant and anti-spasmodic. The water obtained from the flowers by distillation (Aurantii Floris Aqua, Orange Flower Water) has the same properties as the oil, only in a minor degree. The juice of the Orange is refrigerant, containing a large proportion of Citric Acid; but it is of less efficacy than Lemon-juice (see that article and also CITRIC ACID).

Offic. Prep. Of the Peel (Cortex Aurantii):—

1. Infusum Aurantii (Bitter Orange-peel oz. ss.; Boiling Distilled Water fl. oz. x. Infuse fifteen minutes). Dose, fl. oz. j.—fl. oz. ij.

2. Syrupus Aurantii (Tincture of Orange-peel fl. oz. j.; Syrup fl. oz. vij.). Dose, fl. drm. j.—fl. drs. ij.

3. Tinctura Aurantii (Bitter Orange-peel oz. ij.; Proof Spirit Oj. Prepared by maceration and percolation). Dose, fl. drm. j.—fl. drs. ij.

Of the Orange Flower Water (Aqua Floris Aurantii):—

Syrupus Aurantii Floris (Orange Flower Water fl. oz. viij.; Refined Sugar lb. iij.; Distilled Water fl. oz. xvj., or a sufficiency to make the product lb. ivss.). Dose, fl. drm. j.—fl. drs. ij.

Dose of Aqua Aurantii Floris, fl. oz. j.—fl. oz. ij.

893. *Therapeutic Uses. In Febrile and Inflammatory Diseases*, an agreeable refrigerant drink is made, by diluting the juice of the common Orange with water, and sweetening to the taste; or the pulp of the fruit sucked is not only refreshing, but beneficial.

894. *In Scurvy*, Oranges prove highly useful.

895. *In Hysteria and Nervous Affections*, Orange Flower Water is highly esteemed in France, and is given in doses of fl. oz. j.—fl. oz. ij., to produce a stimulant and anti-spasmodic effect.

896. *In Dyspepsia*, the Infusion or Tincture is an elegant and efficacious tonic and mild stimulant. It will often be retained when the stomach rejects other medicines.

897. COCCULUS CORDIFOLIUS. (Menispermum Cordifolium.) (Gulancha, *Hind.*) *Nat. Ord.* Menispermaceæ. *Linn. Syst.* Diœcia Decandria. *Hab.* the Peninsula of India, Burmah, and the Tenasserim Provinces.

Med. Prop. and Action. The root and stem (*off. Beng. Ph.*) are tonic, diuretic, and slightly febrifuge, and render the Indian practitioner in a great measure independent of foreign medicines of the same class. It is a remedy highly esteemed by the Hindoos, and one which might be advantageously admitted into European practice, being abundant, cheap, and efficacious as a general tonic. The Extract, called by the Hindoos *Palo*, is considered to be possessed of great power. The best forms for exhibition are the Decoction (oz. ij.—Water Oj., boil thirty minutes, strain, and boil down to fl. oz. iv.) in doses of fl. oz. j. with honey, thrice daily. The Infusion (oz. ij., Cold Water Oij.; bruise

the stems in a little water, then add the rest: let it stand for six hours and strain) in doses of fl. oz. ij.—fl. oz. iv., thrice daily; or Tincture (oz. viij., Proof Spirit Oij.), in doses of fl. drs. ij.—fl. drs. iv. Of the Aqueous Extract, the dose is gr. lx.—gr. clxxx. daily, in milk, the taste being disguised with sugar.

898. *Therapeutic Uses. In Intermittent Fevers*, the Extract has been successfully employed by Drs. Stewart, Campbell, Hardie, Piddington, and others; but O'Shaughnessy * says that, in his trials with it at the College Hospital in Calcutta, he could scarcely attribute to it any very decided febrifuge effect. In 20 cases of ordinary Quotidian fevers, such as occur in the Tenasserim Provinces, I employed it in doses much larger than those advised in the Bengal Ph., and in every case it prevented the accession of the cold stage; but it did not appear to diminish the severity, or prevent the return of the hot stage. This is a peculiar effect, and one which I have not observed under the use of any other remedy. The Extract deserves further trials; the only forms in which I employed it were the infusion and decoction.

899. *In Chronic Rheumatism and Secondary Syphilitic Affections*, the decoction or infusion (*ut supra*) has been employed by Dr. O'Shaughnessy in the same manner as Sarsaparilla; and he states that he found it of very great utility. Its action was diuretic and tonic.

900. *In Debility after Fevers and exhausting Diseases*, I have constantly used Gulancha for several months. In almost every case it increases the appetite, improves the digestion, gives a tone to the system generally, and proves gently diuretic. It causes very slight arterial excitement, and it does not constipate the bowels. As a general tonic, it is of great power; and what enhances its value to the Indian practitioner is, that it is procurable in almost any quantity in all parts of India.

901. Cocculus Indicus. Indian Berries, or Indian Cockles. The fruit of Menispermum (Anamirta) Cocculus. *Nat. Ord.* Menispermaceæ. *Linn. Syst.* Dicœcia Dodecandria. *Source*, Malabar and the Eastern Archipelago.

Med. Prop. and Action. The berries are never given internally. The kernels contain a non-nitrogenous, crystalline, neutral poisonous principle, *Picrotoxin* ($C_{10}H_8O_4$), the properties of which have been examined by Dr. Glover.† From numerous experiments, he concludes, that it acts on the spinal cord; that under its use the animal temperature is much increased; that the iris is contractile until the symptoms are very severe; and that, though a powerful acro-narcotic poison, it is less formidable than Aconitine. In all animals killed by it, he observed congestion of the base of the brain. From its intoxicating properties, it is used for entrapping game and fish, but animals thus caught are often very dangerous to eat. Dishonest brewers use the Extract for adulterating porter. Externally, the seeds are used in the form of ointment, or Picrotoxin (gr. x.) is occasionally substituted for them.

* Bengal Dispensatory, p. 198.

† Monthly Journ. of Med. Sciences, April 1851.

Offic. Prep. Unguentum Cocculi (Seeds of Cocculus Indicus grs. lxxx.; Prepared Lard oz. j.).

902. *Therapeutic Uses. Cutaneous Affections. In Porrigo Furfurfans and Porrigo Lupinosa*, the ointment has been successfully employed by Bateman;* and Dr. Elliotson† states that he has seen great benefit result from its use. *In Scabies, Ringworm, and to destroy vermin in the hair*, the ointment is also occasionally used with success.

COCCULUS PALMATUS. See CALUMBA.

903. COCCUS CACTI. Cochineal. The female Cochineal Insect. An insect belonging to the order Hemiptera; reared in Mexico and Teneriffe. Another species is found in the Brazils.

Med. Prop. and Action. Cochineal has been employed as an anti-spasmodic; but, uncombined, it appears to have little power. In commerce, it is used as a dye; in pharmacy, as a colouring agent.

Offic. Prep. Tinctura Cocci (Cochineal in powder oz. iiss.; Proof Spirit Oj.). Dose, fl. drm. ss.—fl. drs. iss.

904. *Therapeutic Uses. In Hooping Cough*, the Ammoniated Tincture of Cochineal has been extensively employed by the Germans. Dr. Wachtl, of Vienna, speaks of it in the highest terms; and Dr. Aberle also strongly advocates the use of the following mixture:—℞ Pulv. Cocci ʒss., Liq. Ammoniæ fʒss., Spt. Vin. Rect. fʒvij., M. Dose, gutt. v.—x. in water twice or thrice daily. Dr. Allnat‡ states, that, for twenty years, he has successfully employed a mixture, composed of Cochineal ℈j., Carb. of Potash ʒj., and Water fʒviij. M., in doses of a teaspoonful, thrice daily, or oftener. Dr. Pavesi § also reports favourably of its efficacy.

COCHLEARIA ARMORACIA. Horse-radish. See ARMORACIA.

905. COCHLEARIA OFFICINALIS. Common Scurvy Grass. *Nat. Ord.* Cruciferæ. *Linn. Syst.* Tetradynamia Siliculosa. *Hab.* Europe, England.

Med. Prop. and Action. The fresh plant is gently stimulant, aperient, and diuretic. Its use is now altogether discontinued. It was formerly in high repute as an anti-scorbutic, as its common name indicates.‖

COD LIVER OIL. See OLEUM MORRHUÆ.

906. CODEIA. Codeine ($C_{36}H_{21}NO_6+2$ HO), an Alkaloid, was discovered by Robiquet in Opium in 1832. It is soluble in boiling water, Alcohol, and Ether, but not in alkaline solutions. It unites with Acids, forming crystallized salts.

* Synopsis of Diseases of the Skin, 2nd Ed.

† Lectures, p. 400.

‡ Pharm. Journ., March 1844.

§ Ranking's Abstract, vol. xiv., 1851, p. 204.

‖ See Haller in Disput. ad Morbos, vi.

Med. Prop. and Action. Sedative and narcotic, ranked by M. Aran * first amongst remedies of this kind. Inferior to Morphia, he remarks, for calming pains, for this reason only that it must be given in larger doses; superior, inasmuch as it never occasions a heavy agitated sleep, does not bring on perspirations or eruptions of the skin, does not derange digestion, nor induce constipation nor vomiting. As a means of procuring calm and refreshing sleep it is very valuable. Dr. Garrod,† on the contrary, states that he has found gr. v. of Codeia fail to relieve pain, which was readily subdued by gr. ½ of Morphia. He considers that the therapeutics of Codeia require to be investigated. Dr. Aran speaks highly of the relief obtained from it in the *Coughs of Bronchitis and Phthisis*, in *Rheumatism, Gout, Cancer, &c.*

Dose, gr. ½, gradually increased to gr. ij, or more.

907. COFFEA ARABICA. The Coffee Plant. *Nat. Ord.* Cinchonaceæ. *Linn. Syst.* Pentandria Monogynia. *Hab.* Arabia, Persia, East and West Indies.

Med. Prop. and Action. The berry (*vulga* Coffee), when dried and burnt, is tonic and stimulant. In small doses, a strong decoction of Coffee is capable of arresting diarrhœa; whilst, in large doses, it acts as a cathartic. Dr. Pickford‡ attributes this partly to the condition of the motor nerves, which, being weakened, are, by its moderate stimulus, restored to their normal condition; and thereby diarrhœa, depending upon their deranged condition, is relieved. When large doses are taken, the motor nerves become over-stimulated; and on this increased action arises an increased amount of alvine secretion. He considers, also, that Coffee undoubtedly possesses the property of promoting digestion, and of increasing the biliary secretion. This last opinion is in accordance with Liebig's§ views, who points out the singular fact that Caffeine, the peculiar principle of Coffee, is identical with Theine, the peculiar principle of Tea; and that both these substances, with the addition of oxygen and the elements of water, can yield Taurine, the nitrogenized compound peculiar to bile. The experiments of Stuhlmann and Falck show that Caffeine proves fatal to animals in comparatively small doses. It destroys by exhaustion of nervous power, and seems to act especially upon the heart and parietes of the vessels.‖ Caffeine, or a strong solution containing it, produces in man restlessness, palpitations, and other nervous symptoms. It also appears to check the metamorphoses of the animal body, as shown by the diminished formation of Urea, which takes place under its use.¶ Hence it has been proposed to administer strong Coffee in various febrile diseases in which there is excessive metamorphosis of the tissues. Coffee is of importance as a means of disguising the taste of nauseous medicines, particularly Quinine, Senna, and Epsom Salts.

Coffee is contra-indicated in acute sthenic inflammations; and in persons suffering from Piles it causes an increase of irritation and pain.

908. *Therapeutic Uses. In Spasmodic Asthma*, I have constantly found Coffee of the greatest service in allaying the severity of a paroxysm. Sir J. Pringle** ranks it as the best of all palliatives. He directs the Coffee to be made very strong, an ounce to a cup; this is to be taken hot, and repeated every quarter or half-hour. Drs. Bree, Percival, and Musgrave, and, more recently, Laennec and Dr. C. B. Williams†† testify to its

* Edin. Med. Journ., Sept. 1862.
† Essentials of Materia Medica and Therapeutics, p. 161.
‡ Medical Gazette, Nov. 24, 1848.
§ Animal Chemistry, 2nd Ed. p. 179.
‖ See Ranking's Abstract, 1859, vol. xxix. p. 351.
¶ Garrod, Essentials of Materia Medica and Therapeutics, p. 232.
** Percival's Med. Essays, vol. iii. p. 270.
†† Lib. of Med., vol. iii. p. 92.

value. Dr. Forbes,* however, places no reliance on it as a general remedy, but ranks it as one of those narcotics and stimulants which are occasionally useful. It is a simple and safe remedy, and should not be neglected. Asthmatic patients should avoid using Coffee as an ordinary beverage, lest the habit of taking it should impair its efficacy as a remedial agent.

909. *In Infantile Cholera*, Coffee has been extensively used by Dr. Pickford, on the recommendation of Dr. Dewees,† who states that in these cases he has often seen it act like a charm. Dr. Pickford‡ employs it in infusion (℥j. of Coffee, f℥ij. of water, and f℥j. of syrup). Of this he gives a large spoonful every hour. He states that it produces very marked effects, allaying the irritability of the stomach, and improving the colour and character of the motions. It was employed in nine children of different ages, from four weeks to two years and a half old. The dose varied from ℥ss.—℥ij. daily. In each case its success was unequivocal.

910. *In the Bilious Diarrhœa* which was epidemic in 1813, Dr. West§ found the combination of Coffee and Opium very efficacious; and Lauzow, Chultze, and other German physicians, speak of it as a valuable remedy in these cases.

911. *In the Vomiting of Pregnancy*, Prof. Meigs advises a cup of hot Coffee and a piece of dry toast to be taken very early in the morning; after which, the patient should be quiet until her usual time of rising: by this means the vomiting may often be prevented.

912. *In Tic Douloureux, Hemicrania, and other Neuralgic Head Affections*, Coffee is much employed by the Belgian physicians. It has been employed with success by Nebelius and Baglivi, in Cephalalgia; by Dufour, in Hemicrania; and by M. Vanden-Corput,‖ in other forms of Neuralgia. M. Hannon advises the internal use of the Citrate of Caffeine, in doses of gr. j. every hour, for some time before the expected paroxysm.

913. *In Intermittent and other Fevers*, Grindel and M. Dorpat regard Coffee as a powerful febrifuge. In Dutch Batavia, it is used in strong infusion, with Lemon-juice, in the virulent fevers endemic in that island. The practice, passing from thence, has been introduced into Holland, where, M. Vanden-Corput states, it is now preferred to Quinine. Pouqueville declares that it is infallible in the intermittents of the Morea, and Martin-Solon approves of its use in the adynamic form of *Typhoid Fever*.¶ It has been recently proposed to administer a strong infusion of Coffee in febrile diseases, with a view to limit the metamorphosis of tissues.

* Cyclop. of Pract. Med., vol. i. p. 200.

† On the Management of Children, p. 421.

‡ Med. Gaz., op. cit.

§ Quoted by Dr. Pickford, op. cit.

‖ Brit. and For. Med. Chir. Rev., Oct. 1850.

¶ Op. cit.

914. *In Hay Fever, or Hay Asthma*, a cup of strong Coffee, without milk or sugar, repeated every two hours, is spoken of by Mr. Worthington,* as affording relief when various other remedies had proved unsuccessful.

915. *In Hooping Cough*, strong Coffee is strongly recommended by Dr. Guyot.

916. *In Poisoning by Opium, Aconitine, and other Narcotic Poisons*, a strong infusion of Coffee, without milk or sugar, is an effectual stimulant. It is also advantageously given in the *depression after drunkenness.*

917. *In Nervous and Hysterical Headaches*, a cup of strong Coffee is recommended by Percival and Baglivi.

918. COLCHICUM AUTUMNALE. Meadow Saffron. *Nat. Ord.* Melanthaceæ. *Linn. Syst.* Hexandria Trigynia. *Hab.* England, and some parts of Europe.

Med. Prop. and Action. The Cormus, or Bulb, and the Seeds (*off.*) are acrid, purgative, diuretic, and sedative, in doses of gr. iij.—v. thrice daily or oftener. They contain a poisonous principle, *Colchicina* or *Colchicine;* and a peculiar acid, *Cevadic Acid.* In small doses, Colchicum increases the secretions generally, particularly those of the liver and mucous membrane of the intestines. In a full dose it purges copiously, allays pain in a remarkable manner, and depresses the action of the heart and arteries; in some persons it gives rise to intermission of the pulse; the motions produced by it are copious, frequent, and of a highly bilious character; the fæces, though solid, are surrounded with mucus, and its operation seems more analogous to that of the saline purgatives than of any other cathartic. Its sedative influence, though sensibly connected with its evacuant effects, is not, however, solely dependent upon them, and the number of motions may be very considerable without any proportionate depression of the strength ensuing (Dr. Barlow).† Colchicum has been asserted to exercise a twofold action on the urine. Chelius‡ believes, and the same fact has been stated by others, that, even in moderate doses, it has the effect of increasing the amount of lithates and Lithic Acid in the urine, when these are deficient; and Dr. Graves§ has observed that, when the urine is loaded with lithates, Colchicum has the effect of decreasing their quantity, or of removing them altogether. This subject, however, has been carefully examined by Dr. Garrod,‖ who draws the following conclusions:—1. That there is no evidence to prove that Colchicum produces its effects upon the system by causing the kidneys to excrete an increased amount of Uric Acid, but that in fact the reverse would seem to hold good. 2. That Colchicum is not always diuretic, but often diminishes the renal secretion, especially when its action is exerted upon the alimentary canal. 3. That it has no marked influence on the excretion of urea. These conclusions are drawn from careful analysis of seventy-two cases. From idiosyncrasy some persons are unable to take even the smallest dose of Colchicum without its producing serious constitutional disturbance. Externally applied, it is anodyne.

Offic. Prep. Of the Bulb (Cormus Colchici):—

1. Extractum Colchici (the expressed juice, heated to 212°, strained and evaporated at a temperature not exceeding 160°, to a proper consistence). Dose, gr. ½—gr. ij. every four or six hours.

* Lancet, Aug. 1842.
† Cyc. Pract. Med., vol. ii. art. Gout.
‡ London Medical Gazette, vol. vii.
§ British and For. Med. Rev., April 1849.
‖ Proceedings of Royal Med. Chir. Soc., June 8, 1858.

2. Extractum Colchici Aceticum (prepared as the Extract, with the addition of fl. oz. vj. of Acetic Acid to lbs. vij. of Colchicum Corms deprived of their coats). Dose, gr. ½—gr. ij.

3. Vinum Colchici (Colchicum Corm dried and sliced oz. iv.; Sherry Oj. Prepared by maceration). Dose, ♏x.—fl. drm. ½, or to fl. drm. j.

Acetum Colchici (Ph. Lond.) (Dried Colchicum Corm 3iiiss.; Dilute Acetic Acid Oj.; Proof Spirit f℥iss. Prepared by maceration). Dose, ♏x.—f3j.

Of the Seed (Semen Colchici):—

Tinctura Colchici Seminis (Colchicum Seed, bruised, oz. iiss.; Proof Spirit Oj. Prepared by maceration and percolation). Dose, ♏x.—fl. drm. ½.

Dose of the Powdered Corms, gr. ij.—gr. viij.

919. *The Modus Operandi of Colchicum* is undetermined. Dr. A. T. Thompson* considers that it operates primarily on the bowels, stimulating the orifice of the common gall duct, so as to produce copious bilious evacuations; and, secondarily, on the nerves and arterial system. Dr. Robertson† considers that its value as a gout medicine is unquestionably owing to a *specific* action upon the fibrous tissues. The following explanation is that of a writer in the "Medico-Chirurgical Review" (Jan. 1846). The primary effects of Colchicum, observes this writer, seem to be exerted upon the mucous surface of the bowels and stomach, stimulating their secretion, and powerfully affecting their nerves (in a manner similar to that of Veratria upon the skin). Its secondary effects are directed more immediately upon the kidneys, exciting them to a more active elimination of Lithic Acid, and probably, too, of other nitrogenized elements. The action of the remedy is, therefore, twofold: first, on those organs engaged in what Dr. Prout has called the process of primary assimilation; and afterwards on those engaged in the process of secondary assimilation. Dr. Garrod,‡ on the other hand, asserts that it possesses a power of controlling the pain and inflammation in gout, independent of all evident increase of the secretions.

Contra-Indications. 1. A great amount of debility. 2. Profuse Diarrhœa. 3. Asthenic form of Gout.

Rules for Administration. See those of Dr. Todd, in section Gout.

920. *Therapeutic Uses. In Gout and Rheumatic Gout*, the beneficial effects of Colchicum are established beyond question; but the mode in which it is best given, the period best suited for its administration, and the cases for which it is suited, are points which demand serious consideration. It is by no means a remedy to be given indiscriminately; nor one which, in all cases, will produce equally beneficial effects. Dr. Todd's rules, given below, are judicious and practical:—

1. Colchicum should never be given in the asthenic form of Gout.

2. It should never be given at the outset of a paroxysm; nor until the bowels have been duly acted on by mild purgatives.

3. The first doses of the medicine should always be small; they may be gradually increased.

4. It should always be administered at first uncombined with other medicines, until the practitioner has satisfied himself that it is not likely to disagree with the patient.

5. It should not be administered so as to excite nausea,

* Cyc. Pract. Med., vol. i. p. 370.
† Treatise on Gout.
‡ Essentials of Mat. Med. and Therap., p. 311.

vomiting, or purging. These effects should be regarded as indicative of the unfavourable operation of the medicine.

6. It may be regarded as acting favourably, when, under its use, the urine is increased in quantity; an abundant supply of bile is discharged; when the fæces, though solid, are surrounded by mucus; and when the skin secretes freely.

7. Its effects should be carefully watched, as it is apt to accumulate in the system.

In fine, the use of Colchicum seems chiefly applicable to the sthenic form of Gout, which occurs in robust constitutions, and in the prime of life; but it is almost inadmissible in persons advanced in years, who have had several attacks, and in whom the malady seems to be too deeply rooted to be influenced by the temporary administration of this remedy.

To the above excellent rules, the following observations may be appended:—

1. It is necessary to continue the use of Colchicum for many days after the entire cessation of the symptoms; the doses, however, may be diminished, and the intervals between them lengthened. (Dr. Budd.*)

2. In common cases of Gout in the extremities, Colchicum should not be used at first, but should be deferred a day or two until the malady has fixed itself. (Sir H. Halford.†)

3. Alterative doses of Colchicum (doses, that is, which produce the desired purpose gradually and by insensible operation) given during the intervals of the paroxysms, may probably avert many a fit of the Gout. (Dr. Watson.‡)

4. If the stomach be very irritable, Colchicum is best given in an effervescing draught, with an excess of alkali.

5. When Colchicum cannot be administered internally, on account of producing constitutional disturbance, it may be applied externally to the painful parts. In this way it will relieve 9 cases out of every 10. (Dr. Laycock§ and Mr. Wandsborough.‖)

The extent to which Colchicum should be carried has been the source of much difference of opinion. Dr. Elliotson¶ says, that it is comparatively of little use unless it cause vomiting and purging; an opinion which is also held by Drs. Sutton, Christison, Mr. Wigan of Brighton, and others. On the other hand, Drs. Gairdner, Todd, Robertson, Barlow, and other eminent authorities, consider that the operation of Colchicum is most certain when these derangements are absent. On this point Dr. Barlow** observes, "If we have had a difficulty in exhibiting Colchicum, it arose from its too great readiness to purge, and the

* Library of Medicine, vol. v. p. 223.
† Loc. cit.
‡ Lectures, vol. ii. p. 701.
§ Medico-Chir. Rev., No. lxi. p. 190.
‖ Lancet, July 29, 1837.
¶ Lectures, p. 1017.
** Cyc. Pract. Med., vol. ii. p. 372.

consequent necessity of relinquishing it. Much more benefit is to be derived from its sedative than its evacuant operation; the latter can be supplied by other and better means; in the former it possesses advantages peculiarly its own." The weight of evidence is decidedly in favour of the opinion expressed by Dr. Barlow; notwithstanding which, there can be no doubt that Sir C. Scudamore's formula is one which has been productive of great benefit:—℞ Magnes. Sulph. ʒj.—ʒij., Acet. Colchici (Ph. Lond.) fʒj.—fʒij., Magnes. Carb. gr. xv.—xx., Aquæ fʒiss. M., ft. haust. This draught is to be repeated every four, six, or eight hours, according to the urgency of the symptoms, and the extent of its operation.

921. *In Acute Rheumatism*, Colchicum is a remedy of great value It is particularly useful in the synovial form of the disease. The bowels having been cleared out by a brisk purgative, and, if the urgency of the symptoms require it, blood having been abstracted, the following formula of Dr. Barlow * has been found of eminent service:—℞ Liq. Ammon. Acet. (Ph. Lond.), Mist. Camph. ää fʒss., Vin. Sem. Colchici, Vin. Ant. Tart. ää ɱxx., Syr. Aurant. fʒj., M. ft. haust. ♦tis vel 6tis horis sumend. Dr. Budd † and Dr. R. B. Todd ‡ consider that the virtues of Colchicum in Rheumatism have been greatly overrated; indeed, the latter considers that it has a prejudicial influence on the nervous system. I have, however, never seen any ill consequences follow its use, and have too often witnessed its beneficial operation not to advise its use in the majority of cases, particularly when administered in the manner advised by Dr. Hope (see Calomel). At the same time it must be admitted, that when the disease assumes more of a fibrous than a synovial character, Colchicum often disappoints our expectations. The rules for its administration are those already laid down in Gout. Dr. Laycock § strongly advocates its external application.

Colchicum should be discontinued if there be—1, a cessation of the pain; 2, a depressed state of the nervous system; 3, purging; 4, a disappearance of the lithates in the urine. (Dr. McLeod.‖) To these may be added the observations of Dr. Watson,¶ that if the Rheumatism do not give way when the bowels become affected, it is useless to push Colchicum any further.

922. *In Inflammation of the Heart and its Membranes attendant on Rheumatism*, Colchicum is often of decided utility, after the first violence of the attack is subdued. It has also sometimes proved adequate to the cure of the chronic form, on persevering many months in its exhibition. (Dr. Joy.**)

* Cyc. Pract. Med., art. Rheumatism.
† Lib. of Medicine, vol. v. p. 202.
‡ Medical Gazette, Oct. 1848.
§ Medico-Chir. Rev., No. lxi. p. 190.
‖ Lond. Med. Gaz., vol. xxi.
¶ Lectures, vol. ii. p. 679.
** Lib. of Medicine, vol. iii. p. 323.

923. *In Rheumatic or Arthritic Affections of the Eye, particularly Iritis*, Colchicum proves signally beneficial. After reducing any excess of inflammation by leeches and strict antiphlogistic measures, Colchicum may often be relied on. It may be advantageously combined with Tincture of Hyoscyamus and other sedatives; and should be discontinued on the occurrence of purging. Mercury in these cases is inadmissible.

924. *Calculous Diseases. In the Lithic or Uric Acid Diathesis*, particularly if occurring in gouty subjects, or free livers, Sir B. Brodie * states that he has found Colchicum very useful. In the first instance, fifteen drops of the Vinum may be administered twice or thrice daily; afterwards a saline aperient and from xl.—l. drops may be occasionally given in the morning with advantage.

925. *In Cystitis of Rheumatic and Gouty subjects*, Colchicum is a valuable adjunct to Pareira Brava, or Buchu. Given alone, it will, in many instances, afford great relief, if not effect a cure. Sir B. Brodie † considers that it is indicated when the urine is alkaline. In the *Nephritis of Gouty subjects*, it is advised by Dr. Copland,‡ conjoined with Magnesia. *In Orchitis*, occurring in the same class of persons, Colchicum is sometimes productive of excellent effects. Mr. Saunders,§ R.N., relates a case which, after resisting all other treatment, speedily yielded to Colchicum and fomentations.

926. *In Senile Enlargement of the Prostate Gland*, it often proves effectual. This is, in a measure, accounted for by the fact that this affection frequently occurs in persons of a gouty diathesis. It may advantageously be combined with other remedies, thus:—℞ Ext. Colchici gr. j., Pil. Hydrarg. gr. j., Ext. Colocynth. Co. gr. iij., M. ft. pil. bis quotid. sumend.

927. *In Inflammation, and in some Febrile Diseases*, Colchicum, from its power of depressing the action of the heart and arterial system, as well as from its purgative and diuretic action, seems a remedy peculiarly adapted to these cases. It is, doubtless, highly useful when the disease assumes a rheumatic character, and proves a valuable auxiliary to blood-letting and other antiphlogistic means; but it should not be trusted to alone, and its operation should be carefully watched, as it is apt, in some instances, to produce an alarming degree of depression. *In Pleuritis, Bronchitis, and other inflammatory Pulmonary Affections*, it is recommended by Mr. Haden.‖ Mr. Embling ¶ also states that in *Scarlatina, Measles, Small-Pox, Influenza, and in every other*

* On Diseases of the Urinary Organs, p. 205.
† Op. cit., p. 198.
‡ Dict. Pract. Med., vol. ii. p. 641.
§ Med. Times, vol. xv. 1847.
‖ Obs. on Colchicum Autumnale, 8vo, 1820.
¶ Lancet, May 1843.

form of Fever, when there has been the slightest manifestation of inflammatory action, he has found Vin. Colchici of the highest service, and superior in efficacy to salines. He found it highly useful in checking the evening exacerbations of febrile diseases, and in shortening their duration. *In Scarlatina*, Dr. R. Lewin * insists strongly on the value of this remedy; and in controlling the delirium and coma of this fever, it was found very effectual by Prof. H. Bennett.† *In Acute Synovitis*, it is a valuable adjunct to other remedial measures.

928. *In Dropsy*, Colchicum was proposed as a remedy by Baron Stoerck; and when given so as to produce its diuretic and purgative action, it has been found useful. It is chiefly useful in the sthenic forms, and when it occurs in gouty or rheumatic subjects; but even here its operation should be carefully watched. *In Hydrothorax and Hydrocephalus*, it has also been advised by the German physicians; but it appears to be inferior to Digitalis. *In the Anasarca of old persons*, Dr. Pereira ‡ states that he has found it beneficial when given in combination with salines. *In Anasarca following Fevers*, Dr. Darwell § states that he has found it very efficacious, and that it frequently acts powerfully on the kidneys when other medicines fail to make any impression. He advises the following mixture:—℞ Spirit. Colchici Ammoniati ʒij., Potass. Sesquicarb. ʒj., Infus. Spartii fʒviij., M. cap. fʒss.—fʒj. 3tiis horis.

929. *In Chronic Bronchitis*, the Acetum Colchici, in combination with Squills and Henbane, has appeared to afford evident relief in many instances. It is favourably spoken of by Dr. Hastings.‖

930. *In obstinate Constipation*, Dr. Chapman ¶ states that he found nothing so efficacious as the tincture of the root of Colchicum in doses of gutt. x. several times daily. He adds that he has seldom found it fail, and that the dose should be small, as the object is attained rather by gradual insinuation than by forcible impression.

931. *In Gonorrhœa*, Colchicum has been extensively employed by Dr. Ticinus,** of Dresden; and he states that he has met with great success from its use. He gives ♏xxv.—♏xxx. of the Vinum thrice daily, combined with Tinct. Opii, enjoining at the same time antiphlogistic remedies and the hot bath. *In other inflammatory discharges from the Urethra in the male, and from the Vagina and Uterus in the female*, he also found its use

* Edin. Med. and Surg. Journ. lxxi. p. 185.
† Edin. Monthly Journ., Aug. 1851.
‡ Mat. Med., vol. ii. part i. p. 163.
§ Cyc. Pract. Med., vol. i. p. 77.
‖ On Inflammation of Mucous Membranes of the Lungs, 1820.
¶ On Diseases of the Abdominal Viscera, p. 299.
** Caspers Wochenschrift, Aug. 26, 1849.

attended with signal benefit. Mr. S. Cooper* also states that he has found the Vinum Colchici useful in relieving *Strangury, Ardor Urinæ, and irritable states of the Bladder.* Sir B. Brodie found that a full dose of the Vinum Colchici (f℥ss.—f℥j.), taken at bed-time, is often effectual in preventing the occurrence of *Chordee.*

932. *For expelling Tape-Worms,* Colchicum has been found efficacious by Chisholm and Baumbach.†

933. *In Jaundice,* Dr. Copland‡ states that he has prescribed Colchicum in several instances with marked benefit. He has generally combined it with mild mercurials, or soap, or alkalies, or with Magnesia and the neutral salts, according to circumstances. It should be given in small doses, should be continued for a considerable time, and should be carefully watched. If there be much debility, or if it produce depression, it may be given with Camphor. It often, he adds, increases the biliary secretion in cases depending upon *chronic inflammation or enlargement of the Liver,* and promotes the resolution of the former, and a diminution of the latter morbid state.

934. *In Neuralgia,* Colchicum has not, in the opinion of Dr. Copland,§ been so generally employed as it deserves. Its use should be preceded by cathartics; and, in order to be successful, it should be given in conjunction with stimulants and tonics, the Sesquicarbonate of Ammonia or Cinchona. He relates a case in which, thus prescribed, it produced unequivocal benefit.

935. *In Tetanus,* Colchicum has been employed by Dufresnoy and Dr. Smith,‖ but no reliance is to be placed upon it. It may, however, prove a useful adjunct when much vascular excitement is present.

936. *In Hooping Cough,* it is advised by Haden and others to be given with Magnesia, the alkaline carbonates, or anti-spasmodics. It may prove serviceable in the inflammatory stage, but it can hardly be considered safe as a remedy when the disease occurs in young children.

937. *In Erysipelas,* it was also employed by Mr. Haden with success; and Mr. Bullock¶ speaks favourably of it with alkaline subcarbonates.

938. Collodium. Collodion. A solution of Pyroxylin (Gun Cotton) ($C_{36}H_{22}$, $8\,NO_4$, O_{30}) in Ether, mixed with one-third of its volume of Rectified Spirit. Introduced by Mr. Maynard, of Boston, in 1848, as a substitute for adhesive plaster. A colourless highly inflammable liquid, with ethereal

* Surg. Dict., 7th Ed., art. Gonorrhœa.

† Quoted by Pereira, vol. ii. part i. p. 163.

‡ Dict. Pract. Med., vol. ii. p. 310.

§ Ibid. vol. ii. p. 823.

‖ See Medico-Chir. Rev., July 1836, p. 161.

¶ Med. Quarterly Review, vol. ii. p. 183.

odour, which dries rapidly upon exposure to the air, and leaves a thin transparent film, insoluble in water and rectified spirit.

Prep. The Brit. Pharm. directs that fl. oz. v. of Sulphuric Acid be mixed with fl. oz. v. of Nitric Acid in a porcelain mortar. One ounce of Cotton is then immersed in the mixture, which is to be stirred for three minutes with a glass rod until the cotton is thoroughly wetted by the Acids. The cotton is then transferred to a vessel containing water, and washed with fresh supplies of water, until the washing ceases to give a precipitate with Chloride of Barium. The product (Pyroxylin) is then to be drained on filtering-paper and dried in a water bath. To prepare Collodion, oz. j. of Pyroxylin is to be dissolved in a mixture of fl. oz. xxxvj. of Ether with fl. oz. xij. of Rectified Spirit. Another mode of preparing Collodion is as follows:—Take Cotton ʒv., Sulphuric Acid fʒxvj., Nitre ʒx. The Acid and the Nitre should be mixed in a china capsule, and the cotton being added, the mixture should be agitated for the space of three minutes with a glass rod. It should then be well dried. Gun cotton, thus prepared, should be used in making Collodion in the following manner:—Take Gun Cotton ʒij., Sulphuric Ether fʒiv., Rectified Spirit fʒij., mix well together, and keep in a closely-stoppered bottle. (Miahle.*)

939. *General Observations on the Use of Collodion.* When a layer of Collodion is laid on any surface, a transparent coating is left by the evaporation of the Ether, which possesses in a marked degree the properties of contractility and adhesion, as well as transparency, pliancy, and impermeability. By its powerful contraction, observes Dr. Bigelow, upon evaporation, it places the edges of an incised wound in much more intimate contact than is obtained by sutures and adhesive cloth, unites them by equal pressure throughout the extent of the wound, and maintains them immovably fixed. It preserves the wound perfectly from contact with the air, while its adhesion to the skin is so intimate as to prevent the possibility of air entering beneath the edges. The substance remaining in contact with the skin and wound after the evaporation of the Ether, is inert as far as any irritating property is concerned, and this can hardly be said of any resinous adhesive cloth or preparation. It does away with any necessity for sutures in incised wounds of almost any extent. It is sure to remain in contact with the skin until union is complete, and, being quite impervious to water and presenting a polished surface, it allows the surrounding parts to be washed without regard to the wound or dressing. It is colourless and transparent, thus permitting the surgeon to witness all that goes on beneath, without involving the necessity of removal. No heat is necessary for its application, and the presence of a moderate degree of cold is only objectionable in retarding the evaporation of the Ether. Finally, it is made at a trifling cost, an ounce, intrinsically worth little, being sufficient for a great number of dressings.

If used pure, it has been found that the film left by the evaporation is liable to crack from want of elasticity, and consequently to peel off; to remedy this it should be combined with a small proportion of oil or of glycerine (Glycerine 2 parts, Collodion 100 parts), which does not interfere with its action, and allows of movement in the parts without cracking. A very pliable Collodion may be made of 30 parts of Collodion, 12 of Venice Turpentine, and 6 of Castor Oil. (Squire.†)

940. *Modes of Application.* The following is the mode advised by Dr. Bigelow:—For straight incisions, of whatever length, provided the edges can be brought together without great difficulty, it is better to apply the solution in immediate contact with the skin as follows:—The bleeding should be arrested, and the skin thoroughly dried. If the lips of the wound are themselves in contact, the surgeon has only to apply a coating of the solution *lengthwise* over the approximated edges by means of a camel's-hair brush, leaving it untouched after the brush has passed over it until it is dry—a period varying

* Med. Times, vol. xviii. p. 321.

† Companion to the British Pharmacopœia, p. 64.

from ten to twenty seconds. The first film will of itself have confined the edges together, but, in order to increase the firmness of the support, more must be applied in the same manner, allowing it to extend on either side of the incision half an inch or more. In some cases something more than a film of Collodion is required to counteract the tendency of the edges of the wound to separate. For this purpose goldbeater's skin or oil silk, which maintains the transparency of the dressing, should be applied to the wound after the solution has dried and firmly contracted. Lint or a piece of cloth or tissue paper, though not transparent, will answer. If, however, adhesion by first intention is not desired, the Collodion may be laid on transversely like strips of plaster, and one strip should be dried and have the support of goldbeater's skin, &c., before a second is applied. Room is thus left for the escape of pus, and for the surgeon to view the progress of the wound. Mr. Maynard observes that in most instances he has employed it with straps of cotton and sheep-skin, forming with them a strong unyielding adhesive dressing, the best form in his opinion which can be employed in Surgery.

These are the principal points of notice of any importance, but the reader may consult for further information the "London Journal of Medicine," Feb. 1849 (from which the above is condensed), "American Journal of Medical Sciences," April 1848, "Lancet," 1848-9, "Med. Times," Dec. 23rd, 1848, "Medical Gazette," &c. It is, however, not so universally applicable as was at first supposed; indeed, Mr. Startin states that in some cases it was found prejudicial. (R.)

941. *Therapeutic Uses. Diseases of the Skin. In Chronic Erythema of the Face, Intertrigo, Herpes, Labialis, Herpes Præputialis, Lichen Agrius, Lupus Exedens, Lupus Non exedens, Acne Vulgaris*, and in some other cutaneous affections, Collodion has been employed by Erasmus Wilson,* and he states that he found it efficacious in the majority of cases.

942. *To prevent Pitting in Small-Pox*, the local application of Collodion was advised by Dr. Ranking,† of Norwich. Its practical utility has been proved by M. Aran.‡ Dr. Fenger,§ of Copenhagen, has proposed, as very effectual, the abortive treatment of *Herpes Zoster*, by the local application of Collodion.

943. *In Erysipelas*, Collodion has been successfully employed in many instances by Mr. Luke.‖ It was applied not only over, but beyond the inflamed surface. Its action appeared to be twofold:—1, it protects the inflamed surface from contact with the air; and 2, by its pressure drives the blood from the distended capillaries. It is also very favourably spoken of by Mr. E. Wilson.¶

944. *To Burns*, Collodion has been employed in America, by Dr. Crawford** and others. The whole of the inflamed surface is covered with a thin glazing, which effectually excludes the air, and the pain was found to subside almost immediately. The value of Collodion in these cases is confirmed by Dr. Blumhardt.†† He considers that it acts by protecting the sensitive

* Lancet, Nov. 18, 1848.
† Ibid. Jan. 13, 1849.
‡ Provincial Journal, April 2, 1851.
§ Brit. Med. Journ., Dec. 21, 1861.
‖ Lancet, 1850.
¶ Dis. of Skin, p. 147.
** American Journ. of Med. Sciences, April 1848.
†† Ranking's Abstract, vol. xix. p. 114.

cutis, and also by giving uniform support to the part and relieving the capillaries of all undue distension.

945. *To Bed Sores*, it has been found an excellent application by Dr. Muirhead, of Glasgow.*

946. *On Chapped and Sore Nipples*, Mr. Erasmus Wilson† states that the effect of Collodion is very remarkable. The gaping cracks were instantly drawn together, and almost obliterated by the contracting power of the remedy; and were effectually shielded from the influence of moisture, and the pressure of the gums of the infant, in consequence of the rapid evaporation of the Ether in an instant of time. *In painful fissures at the base of the Nipple*, it has also been successfully employed by Prof. Simpson,‡ of Edinburgh. Having brought the edges of the wound together, he applied Collodion, which formed a protection against all irritating influences, and permitted the child to suck without causing pain to the mother. The healing process took place rapidly. It may also be applied to *chapped hands and lips*.

947. *Hæmorrhage from Leech bites, Cupping, and from superficial wounds*, is, in the majority of cases, effectually arrested by the application of Collodion. Cases illustrative of its efficacy are given by Dr. Ranking,§ of Norwich, Mr. Wyld,‖ Mr. Tucker,¶ and others.

948. *In a case of Laceration of the Perinæum*, Collodion was applied by Dr. Cormstock.** He states that it was attended with a success he never witnessed under any other mode of treatment.

949. *Wounds, whether caused by operation or accidental*, will, it is stated, heal more rapidly under the use of Collodion than under any other treatment. The mode of application is detailed in a former part of this article. Collodion has been used with success as an application to *Hernia Cerebri*, after compound fracture of the skull, by Mr. Shaw, of the Middlesex Hospital, and Mr. W. D. Spanton.††

950. *Mammary Abscesses* have been treated successfully by Drs. Evans and Murphy‡‡ (U.S.) by the external application of Collodion. It appeared to hasten resolution, and to remove induration.

951. *In Ulceration of the Os and Cervix Uteri*, Collodion is recommended by Dr. Mitchell,§§ of Dublin. He considers it superior in efficacy to the Nitrate of Silver. The ulcerated sur-

* Lancet, June 27, 1849.
† Ibid. Nov. 18, 1848.
‡ Monthly Journ. of Med. Sciences, July 1848.
§ Lancet, Jan. 13, 1849.
‖ Ibid. Jan. 1, 1849.
¶ Ibid. Dec. 9, 1849.
** Amer. Journ. of Med. Sciences, April 1849.
†† Lancet, March 5, 1864.
‡‡ North Western Med. Journ. March and April 1851.
§§ Dublin Med. Press, Oct. 1848.

face having been wiped clean and dry, the solution is applied with a camel's-hair brush and allowed to dry. The application requires to be renewed in forty-eight hours, as the mucus collects beneath the surface and raises it. It appears to be a matter of great doubt whether Collodion will be found, on further experience, as serviceable in this lesion as is anticipated. The constant application of so powerfully a contractive power will, in all probability, give rise to much irritation of the uterus and its appendages, which would render its use inadvisable.

952. *In Blennorrhagic Orchitis and Epididymitis*, Collodion was proposed as a remedy by Bonnafont; but from the results of thirty-eight cases treated by Ricord,* the practice appears to be not very efficient.

953. *In Toothache*, Collodion is advised by Mr. Robinson.† He considers that a stopping for teeth may be formed of it more durable than gold; the former, however, requiring to be renewed occasionally. After the mouth has been well washed with soda and water, and any foreign substances removed from the cavity of the decayed tooth, he drops from a point the Collodion, to which has been added a few grains of Morphia, after which he fills up the cavity with Asbestos, and saturates with Collodion. Lastly, he places over this a pledget of bibulous paper. In a few seconds the whole becomes solidified, and forms an excellent protection to the exposed nerve.

954. *In Entropium or Inversion of the Eyelids*, Collodion has been successfully employed by Mr. Bowman.‡ He directs the lid to be restored to its natural position, while the Collodion is being applied, by making gentle pressure outwards on the integument below the canthus. In this way the skin of the lower lid is horizontally grooved, while, at the same time, it is left exposed so as to receive the Collodion. It should be held in this position until the Collodion has contracted, at least to such a degree as may be sufficient to maintain the right position of the lid during the further stages of the contraction. One application is generally sufficient; in some instances it requires to be repeated. To insure its success, the Collodion should be concentrated; the surface of the lid should be perfectly dry; the patient's head should be inclined to one side, to allow the tears to run out at one corner of the eye, and not over the lid and cheek; and finally, the Collodion should not be removed for some days. Two cases of *Chronic Entropium* thus successfully treated are related by Mr. W. Batten.§ One of his cases was thus treated as far back as 1847.

* L'Union Méd., Sept. 14, 1854.
† Med. Times, Dec. 28, 1848.
‡ Lond. Journ. of Med., April 1851.
§ Lancet. Oct. 27, 1855.

955. COLOCYNTHIS. Colocynth. The dried, decorticated fruit, freed from the seeds, of Citrullus (formerly Cucumis) Colocynthis. *Nat. Ord.* Cucurbitaceæ. *Linn. Syst.* Monœcia Monadelphia. *Source*, Turkey, Northern Africa, Egypt, and India. Imported chiefly from Smyrna, Trieste, France, and Spain.

Med. Prop. and Action. Powerful drastic cathartic in doses of gr. ij.—x. in emulsion, but, from its extreme acridity, it is rarely given uncombined with carminatives, &c. The compound extract in doses of gr. iij.—x. is the most eligible form for its administration. Combined with Calomel or Blue Pill, it is one of the most generally useful purgatives we possess. Its activity depends upon a bitter principle, *Colocynthin*. It is said to act chiefly on the large intestines, and occasionally causes griping or tormina, nausea, and vomiting. To obviate these effects, it is advisable to combine it with Camphor, which increases its purgative action, at the same time that its influence on the sentient nerves is greatly diminished. Henbane also modifies its action. When applied to an ulcerated or abraded surface, it acts as a brisk purgative; and Orfila states that gr. cxx. of the pulp, applied to the cellular tissue of the interior of the thigh of a man, caused death in twenty-four hours. In large doses it acts as an irritant poison, causing inflammation of the mucous membrane of the intestinal canal.

Offic. Prep. 1. Extractum Colocynthidis Compositum (Colocynth freed from seeds oz. vj.; Extract of Socotrine Aloes oz. xij.; Scammony or Resin of Scammony oz. iv.; Hard Soap in powder oz. iij.; Cardamoms freed from the capsules in fine powder oz. j.; Proof Spirit Cj. Prepared by macerating the Colocynth in the Spirit four days, pressing out the tincture, and adding to it the Ext. of Aloes, Soap, and Scammony. The Spirit is to be distilled off, and the residue evaporated to a pilular consistence, the Cardamoms being added towards the end of the process). Dose, gr. iij.—gr. x.

2. Pilula Colocynthidis Composita (Powdered Colocynth oz. j.; Powdered Barbadoes Aloes oz. ij.; Powdered Scammony oz. ij.; Powdered Sulphate of Potash oz. ½; Oil of Cloves fl. drs. ij.; Distilled Water q. s. Prepared by mixing the powders, adding the Oil of Cloves, and beating into a mass). Dose, gr. v.—gr. xij.

3. Pilula Colocynthidis et Hyoscyami (the same as Pil. Coloc. comp., with the addition of Extract of Hyoscyamus oz. iij.). Dose, gr. v.—gr. xij.

956. *Therapeutic Uses. In Constipation and Visceral Obstructions*, the compound Extract (gr. v.—x.), in combination with Calomel (gr. ij.—iv.), is one of the most commonly used cathartics; and for certainty of operation, it is one of the best formulæ which can be employed. It may be repeated every six or eight hours till it operates. It is inadmissible in all inflammatory states of the intestinal canal.

957. *In some forms of Dyspepsia, and in Gastrodynia*, Colocynth is an eligible purgative. Dr. Barlow* speaks in high terms of the following pills, which, for half a century, have been successfully employed in the Bath Hospital:—℞ Ext. Coloc. Co. gr. iv., Calomel gr. j., M. ft. pil. omni nocte sumend.; a grain or two of Extract of Hyoscyamus may be advantageously added. The stools rapidly improve, and the symptoms disappear under their use. As an adjunct, he advises the annexed mixture:—

* Cyc. Pract. Med., vol. ii. p. 331.

℞ Sodæ Carb. ʒiss., Aq. Puræ Oviiss., Acid. Sulph. Dil. fʒss., Conf. Aromat. (Pharm. Lond.) ʒiij., Spt. Menth. Pip. fʒiij., M. Dose, fʒj. This mixture affords 324 grs. of the Sulphate of Soda, and 433 grs. of the Carbonates. In Dyspepsia, where the nerves of the stomach exhibit symptoms of much sensibility, and where the biliary function is not much deranged, Dr. J. Johnson* advises the following formula :—℞ Ext. Coloc. Co. ℈ij., Pil. Rhei Co. ℈j., Saponis gr. vj., Ol. Caryoph. gutt. iv., M. ft. pil. xvj., sumat. j., ij. vel. iij. horâ somni.

958. *In Dropsical Affections*, particularly when connected with disease of the liver, Colocynth proves useful as a hydragogue cathartic, but it is inferior in efficacy to Elaterium. It was formerly much employed. *In the Leucorrhœa of young Girls*, clysters of Colocynth proved very successful in the hands of Claude† (Verdun). He employed first a simple enema, followed by one prepared with Colocynth. A single fruit is enough for three doses. It produces a large number of stools, the latter ones being bloody.

959. *In Apoplexy, Mania, and some other Cerebral Affections*, Colocynth is particularly useful as a powerful cathartic and derivative. It should be given in full doses, and repeated until it operates freely.

960. Conium Maculatum. Common Hemlock. Cicuta. Spotted Parsley. *Nat. Ord.* Umbelliferæ. *Linn. Syst.* Pentandria Digynia. *Hab.* England, Europe, Greece, Cashmere.

Med. Prop. and Action. Narcotic, anodyne, anti-spasmodic. Active principle, a liquid volatile alkaloid, *Conia* or *Coniine*. Hemlock has also been employed as an alterative and deobstruent in glandular and other swellings. To obtain its full effects it should be commenced in small doses, and continued in gradually-increasing quantities until it produces constitutional effects; viz., headache, vertigo, dryness of the mouth, nausea, or vomiting. It should then be discontinued. The pulse in some cases sinks; in others it is maintained, at 100 or more during the whole time of exhibiting the medicine. Sometimes, the function of the kidneys is augmented; sometimes, that of the skin; sometimes, no effect is produced on the sensibility of the habit, and occasionally this is greatly diminished.‡ It acts principally on the spinal cord, depressing the reflex action and producing effects directly opposite to those of Strychnia. Paralysis of the voluntary muscles, and a creeping sensation from below upwards, are the characteristic symptoms. They are sometimes, though rarely, accompanied with pain or derangement of the intellectual faculties. In some cases, furious delirium or profound stupor precedes death. After the stomach has been evacuated, vinegar has been recommended as an antidote. Externally Conium is employed in the form of ointment (Fresh Hemlock Leaves lb. ij., boil in Lard lb. ij.; express through linen), or in poultice (Cataplasam Conii). In administering the Extract of Conium, great care is necessary to ascertain the strength and purity of the preparation, some samples being almost inert, whilst others are powerfully poisonous. A case is related by Mr. Lloyd,§ of St. Bartholomew's Hospital (the patient

* On the Influence of Tropical Climates, &c. 6th Ed., p. 662.

† Journ. für Kind., 1859, p. 9.

‡ Cyc. Pract. Med., vol. iii. p. 158.

§ Medical Times, vol. xx. p. 216, 1849.

labouring under extensive syphilitic ulceration of the perinæum), in which about 57 ounces (27·480 grains) were given in 112 days without producing any ill effects. During the last seven days of treatment the man took 2,940 grains, or 420 grains daily! On the other hand, four or five grains will in some instances produce serious constitutional disturbance. It is always advisable to commence with small doses, and to increase them as circumstances warrant.

Offic. Prep. Of Conium (Leaves and Branches of fresh plant):—

1. Cataplasma Conii (Hemlock leaf in powder oz. j.; Linseed Meal oz. iij.; Boiling Water fl. oz. x. Mix for a poultice).

2. Extractum Conii (the inspissated juice of the fresh plant). Dose, gr. ij.—gr. v., or more.

3. Succus Conii (the juice of the fresh leaves, with one measure of Rect. Spirit added to every three measures of juice). Dose, ♏xxx.—fl. drm. j.-ij.

Of Hemlock Fruit (Conii Fructus):—

Tinctura Conii Fructus (Bruised Hemlock Fruit oz. iiss.; Proof Spirit Oj. Prepared by maceration and percolation). At least twice the strength of the Tincture of the Lond. Pharm. Dose, ♏xx.—fl. drm. j.

Dose of powdered leaves, gr. iij.—gr. x.

961. *Therapeutic Uses. In Cancer*, Conium was introduced by Stoerck, and its efficacy has been attested by Fothergill, Hamilton, Nicholson, Bell, and many French and German physicians of eminence; but it failed in the hands of Siebold, Lange, Hill, Akenside, and Burne. This discrepancy is partly due to the adulteration, &c., of the remedy; but Recamier,* a strong advocate for its use, has shown that the medicinal effects of Conium were powerful in inverse ratio to the quantity of food taken. When administered with a full diet, he observed that the remedy was almost useless. In his practice, he employed an acetous extract, in doses of gr. ½, twice daily, before a very moderate meal, and gradually increased the dose until gr. xxiv. were taken daily. As a *curative* agent, it is now abandoned; as a palliative, it is very useful. Dr. Copland† has observed great advantage from full doses of Conium, in combination with Borax. Hemlock poultices are useful in allaying pain.

962. *In Cancer of the Stomach*, Dr. Walshe‡ states, that when pushed to gr. x. of the Extract, twice daily, he has seen Conium allay the pain and irritability of that viscus.

963. *In Chronic Bronchitis, Coughs, and in irritable states of the Mucous Membrane of the Air-Passages*, Conium, in combination with Squills, proves a valuable palliative. Dr. Paris§ speaks highly of it: he commences with a dose of gr. iv.—v. thrice daily, and continues it until it produces vertigo or nausea. Dr. Stokes advises inhalation of the vapour (gr. x.—xv. of the Extract in boiling water) once or twice a-day, for a quarter of an hour at a time. It is a constituent of Sir C. Scudamore's Iodine inhalation mixture in Phthisis. (See IODINE.)

* Recherche sur le Trait de Cancer, vol. i. p. 474.

† Dict. of Pract. Med., art. Cancer.

‡ On the Nature and Treatment of Cancer, op. cit.

§ Pharmacologia.

964. *In Chronic Rheumatism*, the inspissated juice of Conium has been used with signal benefit by Dr. Neligan.* He ascribes the failure of the remedy in the hands of others to medical men being afraid to push its use until constitutional effects are fully established. Dr. A. T. Thompson† also speaks favourably of it.

965. *In Rheumatic Paralysis*, Dr. Home,‡ of Edinburgh, employed the Extract of Conium in 6 cases. Of these, 3 were relieved, and 3 entirely cured; although 2 of them were of long standing, and 1 occurred in an old person.

966. *In Sciatica*, Dr. A. T. Thompson§ states, that his experience authorizes him in saying, that it is more to be depended upon than any other narcotic. In other *Neuralgic Affections*, it also proves highly serviceable. *In Tetanus*, the use of Conium was suggested by Mr. De Morgan,‖ with the view of diminishing the irritability of that part of the nervous centres which controls the reflex muscular action, and inducing muscular paralysis. A striking case in which it was successfully employed is recorded by Dr. Corry.¶ Five grains of the Extract were given every third hour.

967. *In Mercurial Tremor*, Mr. M'Whinnie employed Conium in full doses, and states that he found it more effectual than any other treatment.

968. *In Menorrhagia, or immoderate flow of the Menses*, Dr. Dewees** observes, that the most successful remedy which he has employed is the Extract of Conium, commencing with a minimum dose, and increasing it gradually until it produces headache and vertigo, or until the disease yields. He thinks it most useful when the discharge consists chiefly of coagula.

969. *In Cancer of the Uterus*, Conium, in increasing doses, has been occasionally beneficial. Dr. Dewees†† says that he has sometimes derived temporary advantage from it, but never witnessed any permanent good, to whatever extent it was carried. To allay extreme pain, it occasionally is useful in the form of injection (drs. iij.—drs. iv. in Aq. Oj.).

970. *In Scrofula*, Conium was first advised by Stoerck. It was highly spoken of by Fothergill; and Cullen states that he found it useful in discussing obstinate *scrofulous swellings*. As a curative agent it is now abandoned. *To painful scrofulous Ulcers*, however, Hemlock poultices are a valuable means of allaying the pain and irritability. Sir E. Home‡‡ found them

* Dublin Journal, vol. xxviii. p. 199.
† Cyc. Pract. Med., vol. iii. p. 158.
‡ Clinical Experiments.
§ Op. cit.
‖ Brit. and For. Med. Chir. Rev., April 1859.
¶ Dublin Quart. Journ. of Med., Nov. 1860.
** On Diseases of Females, p. 154.
†† Op. cit, p. 274.
‡‡ Obs. on Ulcers on the Leg, 1801.

particularly useful in ulcers about the ankle and knee, occurring in scrofulous subjects. If the weight of the poultice is objectionable, he advises the application of lint, saturated in a decoction of the herb. In *Scrofulous intolerance of Light*, Coniine has been applied externally to the eyelids by Dr. Mauthner.* He found great benefit from the following :—℞ Coniinæ gr. ss. ; Ol. Amygdalæ fʒj. To be applied twice or thrice daily.

971. *In Syphilitic Ulcerations*, whether primary or secondary, attended with much pain and irritation, Hemlock, both internally and externally, is occasionally attended with excellent effects. *In Phagedenic Ulcerations*, particularly when they attack the feet after a long mercurial course, Mr. Pearson † regarded it almost as a specific. Cases of extensive ulceration, cured by large doses of Conium, are related by Mr. Wilson ‡ and Mr. Lloyd. § Its beneficial operation in these cases cannot be ascribed solely to its anodyne qualities, as the same good effects are not obtained from Opium and other narcotics. *In Ulceration of the apex and base of the tongue*, whether Syphilitic or Idiopathic, Conium, internally, has been found of signal benefit.

972. Contrajervæ Radix. The Root of Dorstenia Contrajerva, Dorstenia Brasiliensis, and probably of other species. *Nat. Ord.* Moraceæ. *Linn. Syst.* Monœcia Tetrandria. *Source*, West Indies and South America.

Med. Prop. and Action. Stimulant, tonic, and diaphoretic, in doses of gr. xx.—gr. xxx. of the powdered root, or fl. oz. j.—fl. oz. ij. of infusion (oz. ss. Aq. fl. oz. v.). It occasionally causes vomiting. Its activity depends upon a volatile oil and a bitter extractive.

973. *Therapeutic Uses. In Typhoid and other low Fevers*, it was formerly in high esteem, and is favourably spoken of by Pringle, Huxham, and others. It is now almost obsolete.

974. Copaiba. Copaiva. The Oleo-Resin of Copaifera Multijuga, and of other species of Copaifera. *Nat. Ord.* Cesalpineæ. *Linn. Syst.* Decandria Monogynia. *Source*, West Indies and South America. It is chiefly obtained from the province of Para in Brazil. Though usually called a Balsam, it is not correctly so named, as it contains no Benzoic Acid. It is an Oleo-Resin, which varies more or less in colour, odour, specific gravity, and medicinal virtues, according to the species from which it is obtained. (Royle.) Oleum Copaibæ, Oil of Copaiva, is the oil distilled from the Oleo-Resin.

* Journ. für Kinderkr., 1854, Hf. 1, 2.

† Obs. on various Articles of Mat. Med., 1807.

‡ Pharmacopœia Chirurg., p. 174.

§ Medical Times, vol. xx. p. 216.

Med. Prop. and Action. Stimulant of mucous surfaces generally, particularly that of the genito-urinary system. It may be given in doses of ♏xv.—fl. drm. ss. —fl. drm. j. twice or thrice daily in milk or emulsion, or mixed with Spirit of Nitric Ether in Aromatic Water; but, in order to cover its unpleasant taste, it may be given in a thin layer of gelatine (capsules), or in the form of pill (fl. oz. ij. of Copaiba and gr. lx. of Calcined Magnesia, thoroughly incorporated and set aside for eight hours, form a mass which gives 200 pills). Its activity depends upon a volatile oil, which is a perfect substitute for the Balsam in doses of ♏x.—xxx. When Copaiba has been continued in repeated doses for a few days, it causes a slight purging, which may be regarded as a sign that the system has become affected. The urine is generally greatly increased in quantity; smells of the remedy, which may be separated from it by Ether; is stated to be of an intensely bitter taste; and has a copious froth or head, which remains more or less for several hours. Its *modus operandi* is obscure, but it appears probable, that it operates by exciting a new action on irritated mucous surfaces. The odour may be detected in the breath. When Copaiba is given in large doses, it occasionally produces Urticaria.

Dose of Copaiba, ♏xv.—fl. drm. j.; of Oleum Copaibæ, ♏x.—♏xxx.

Remarks on its administration.—1. In some persons, Copaiba, even in small doses, produces violent vomiting and purging. In these cases it should not be persevered with. 2. If it do not soon produce a purgative effect moderately, or an improvement in the symptoms, it should be discontinued. 3. A long course of Copaiba is not unattended with danger. Mr. Thomas relates a case of renal dropsy, clearly traceable to the patient over-dosing himself with it; and Dr. Kinnier states that he has seen several cases of Rheumatism fairly attributable to the same cause. Urticaria, he adds, is by no means an unusual sequence of too long a continued use of this remedy.

975. *Therapeutic Uses. Diseases of the Genito-Urinary System. In Gonorrhœa*, Copaiba is a remedy of great value. Ricord* details the case of a man whose urethra, in consequence of an urinary abscess, was laid open and exposed to view: this man contracted Gonorrhœa, and was treated with Copaiba. From observations in this case, Ricord concludes that this medicine produces its effects by the principles or properties which it communicates to the urine, and of which the urethra receives the influence by the passage of that fluid. The following formula is commonly employed, and with much success:—℞ Copaibæ, Spt. Ether. Nit. āā fl. drs. ij., Liq. Potas. fl. drm. j., T. Hyos. ♏xl., Aq. fl. oz. iv., Mucilag. Acac. fl. oz. ij., M. sumat. coch. amp. ij. ter quaterve in die. M. Diday† considers that it acts more certainly if combined with purgatives, and advises the following:—℞ Copaibæ fʒiij., Pulv. Cubebæ ʒivss., Pulv. Jalapæ gr. xlv., Mellis q. s. ft. electuarium, sumat. dimid. manè, et repet. vespere. The average duration of cure with this formula was five days. Some practitioners prefer the oil, which may be advantageously given thus:—℞ Oil of Copaiba fl. oz. j., Oil of Cubebs fl. drm. j., Sweet Spirits of Nitre fl. oz. j., M. Dose, gutt. xx.—xxx.‡ To avoid its unpleasant taste, it may be given in capsules, in the form of pills (*ut supra*), or in enema. Administered in the latter

* Brit. and For. Med. Rev., vol. xx. p. 529.

† Ed. Med. and Surg. Journ., Jan. 1, 1845.

‡ Bengal Dispensatory, p. 313.

way, it is occasionally very beneficial. *In Chronic Gonorrhœa or Gleet*, the introduction of a bougie smeared with Copaiba sometimes effects a removal of the disease. I have seen a case of two months' standing yield after the third application of Copaiba in this manner.

976. *In Urethritis in the Female*, Dr. M'Clintock * successfully employed Copaiba in two cases. In one the disease had resisted Alum, Zinc, the Nitrate of Silver, and other remedies. Dose, three or four capsules daily.

977. *In Gonorrhœal Rheumatism*, Copaiba has occasionally been found of great service. It should be given in smaller doses than those advised in Gonorrhœa, and should be persevered in for some time. It may sometimes be advantageously conjoined with Colchicum. It proved very successful in the hands of M. Ribes.†

978. *In Leucorrhœa*, Copaiba is sometimes eminently serviceable. Dr. Churchill ‡ speaks highly of it, in doses of ɱxv. thrice daily. If the stomach is delicate, it may be made into pills with Magnesia (*ut supra*); at the same time he advises a blister to the sacrum. Dr. Dewees § also states that he has occasionally succeeded with Copaiba, when other remedies had been fully tried without advantage.

979. *In Pruritus Pudendi in Females*, Dr. Dewees,‖ on the authority of Dr. Ruan, employed Copaiba in some cases with the best effects. It may be given in the doses mentioned in Leucorrhœa.

980. *In Hæmorrhoids or Piles* of long standing, particularly when occurring in old persons, Copaiba, in doses of gutt. xv.—xxv., thrice daily, is productive of great benefit. Cullen ¶ states that he has often employed it with success. To old persons the taste of Copaiba is not generally unpleasant.

981. *In Chronic Cystitis*, occurring in persons of a strumous diathesis, or in debilitated constitutions, Dr. Cumin ** states that the best remedy is Copaiba, combined with Cubebs; and Mr. Liston †† says that it will often remove speedily the most intense irritation when all other means have failed.

982. *Diseases of the Lungs*, when attended with excessive secretion, are often benefited by Copaiba, which exercises a powerful influence over the pulmonary mucous membrane. *In Chronic Bronchitis, Bronchorrhœa, and Chronic Coughs attended with profuse expectoration*, Copaiba has been advised by Arm-

* Med. Times, March 10, 1849.
† Med. Chir. Rev., No. lxi. p. 215.
‡ On Diseases of Females, p. 135
§ On Diseases of Females, 3rd Ed. p. 80.
‖ Op. cit. p. 49.
¶ Mat. Med., part ii. p. 190.
** Cyc. Pract. Med., vol. i. p. 505.
†† Elements of Surgery, part iii. p. 105.

strong,* Laroche,† Phillipart,‡ and others. Dr. C. B. Williams § states that he has often seen it restrain and modify the bronchial secretion. It is particularly useful in old persons. It is inadmissible when fever or much vascular irritability exists.

983. COPALCHI CORTEX. The Bark of Croton pseudo-China, Copalche Bush; the Croton Cascarilla, of Don; the Croton Suberosum, of Humboldt. *Nat. Ord.* Euphorbiaceæ. *Linn. Syst.* Monœcia Monadelphia. *Source*, Chili and Mexico.

Med. Prop. and Action, and Therap. Uses. Dr Stark,‖ who introduced Copalchi into practice, states that it possesses a light tonic property; and that its use has been attended with excellent effects, when Quinine and the stronger tonics are inadmissible. He mentions several cases of aggravated *Dyspepsia*, in which he found it eminently serviceable. He recommends a decoction or infusion (℥ss., Aq. Oj.), in doses of fl. oz. iss., twice or thrice daily. Of the Tincture (℥j., Spirit. Ten. Oj.), the dose is fl. drm. j.—fl. drs. ij. Its activity appears to depend upon a yellow, bitter extractive. Mr. Howard discovered in it a bitter crystalline alkaloid (*Copalchin*), which in some of its chemical reactions resembles Quinine.

984. CORIANDRUM. Coriander. The ripe, dried Fruit (seeds) of Coriandrum Sativum. *Nat. Ord.* Umbelliferæ. *Linn. Syst.* Pentandria Digynia. *Source*, East Indies, Italy, and Southern Europe. Cultivated in England, &c.

Med. Prop. and Action. Carminative and stomachic. Chiefly used as an adjunct to other medicines, or as a condiment. Their activity depends upon the presence of a volatile oil (Oleum Coriandri, Oil of Coriander. *Offic.*).

Dose of Fruit, gr. x.—gr. xxx.; of Oil, ♏ij.—♏v.

Therapeutic Uses, similar to those of Carum Carui.

CORROSIVE SUBLIMATE. See HYDRARGYRUM CORROSIVUM SUBLIMATUM.

985. COTYLEDON UMBILICUS. *Nat. Ord.* Crassulaceæ. *Linn. Syst.* Decandria Pentagynia. *Hab.* Great Britain.

Med. Prop. and Therap. Uses. The expressed juice of this plant has recently been proposed as a remedy for *Epilepsy*. Mr. Salter,¶ of Poole, relates one case successfully treated with it; and Dr. Bullar,** after employing it in several instances, considers, that though it does not effect a cure, it considerably modifies the severity of the attacks, and the frequency of their return. Cases of Epilepsy in which it appeared useful have been recorded by Dr. Sieveking,†† but Dr. Peacock‡‡ failed to notice any beneficial effects in four cases in which he tried it. The dose of the fresh juice is fl. oz. j.; of the inspissated extract, gr. xxx., twice or thrice daily.

* Edin. Med. and Surg. Journ., 1818.
† North American Med. Journ., 1825.
‡ Bulletin Méd. Belg., 1839.
§ Cyc. Pract. Med., vol. i. p. 322.
‖ Edin. Med. and Surg Journ., April 1849.
¶ Medical Gazette, March 2, 1849.
** Ibid., May 18, 1849.
†† Med. Times and Gazette, Dec. 2, 1854.
‡‡ Ibid., Aug. 11, 1855.

COWHAGE. See MUCUNA PRURIENS.

986. CREASOTUM. Creasote, or Kreasote. $C_{16}H_{10}O_2$. A Product of the Distillation of Wood Tar. It is formed during the preparation of Pyroligneous Acid by the destructive distillation of Wood. It is also obtained from Oil of Tar, and is contained in Wood Smoke. It is closely related to Carbolic (Phenic) Acid. Sp. Gr. 1·065.

Med. Prop. and Action. Stimulant, sedative, rubefacient, and antiseptic. It possesses the property of immediately coagulating albumen; and to this may be ascribed many of its effects on the living system, and its power of preserving for months, meat which has been saturated with it. When added to blood, the latter thickens and becomes reddish brown, with small white spots, probably coagulated albumen; on further exposure to the air, the blood acquires a yellowish red colour. When applied to the tongue, Creasote causes violent pain, but without redness or tumefaction; a strong taste of smoke extends to the throat, and there is a copious flow of saliva. Taken internally in small doses, it occasions a sensation of warmth in the stomach, expels flatus, with eructations smelling strongly of Creasote, and appears to exercise a peculiarly sedative action on the stomach, allaying nausea and vomiting more certainly than most other medicines. It increases the flow of urine, to which it communicates its odour. In over-doses it produces the following symptoms, as observed by Mr. Macnamara:* — profound stupor, from which the patient could only be roused for a minute; the countenance flushed, and fuller than natural; the eyes fixed, but the pupils neither dilated nor contracted; the pulse slow and laboured; the heart's action remarkably slow and weak; the stomach irritable, and the ejecta bore a strong smell of Creasote. When aroused, vertigo and uneasiness in the head were complained of; and also a burning pain along the œsophageal track, and in the stomach. Stimulants, the cold douche, and mustard emetics relieved the patient. Applied pure to a bleeding surface, Creasote is styptic.

Offic. Prep. 1. Mistura Creasoti (Creasote ♏xvj.; Glacial Acetic Acid ♏xvj.; Spirit of Juniper fl. drm. ss.; Syrup fl. oz. j.; Distilled Water fl. oz. xv.). Dose, fl. oz. ss.—fl. oz. iss.

2. Unguentum Creasoti (Creasote fl. drm. j.; Simple Ointment oz. j.).

Dose of Creasote, ♏j.—♏v. in pill, or rubbed up with a few drops of Acetic Acid and Mucilage in Aromatic Water. If given in mixture, it should be well diluted: ½ fl. oz. of fluid to 1 drop of Creasote.†

Post-mortem appearances of animals killed with Creasote. All the tissues of the body, except the liver, exhaled a strong odour of Creasote; the mucous intestinal membrane inflamed throughout. In the heart and great vessels the blood was coagulated, the lungs were greatly congested, the brain natural. Death is probably caused mechanically, the Creasote coagulating the albumen of the blood, and preventing its circulation through the arterial system.

Incompatibles. The strong mineral acids; all solutions containing Albumen. It must not be prescribed in pill with Oxide of Silver, unless the latter be first mixed with liquorice powder;‡ otherwise the mass will take fire.

987. *Therapeutic Uses. In Vomiting, Gastrodynia, and Nausea,* Creasote is a remedy of great power. Dr. Elliotson§ considers it of superior efficacy to Prussic Acid; indeed, he says he knows of

* Dublin Med. Press, March 7, 1850.

† Gully's Trans. of Magendie's Formulary.

‡ Squire, Comp. to Brit. Pharm., p. 68.

§ Med. Chir. Trans., vol. xix. p. 217.

no medicine to be compared with Creasote in arresting vomiting. Drs. Shortt, A. T. Thompson, Bodington, Cormack, and others, bear witness to its efficacy. Even in vomiting attendant upon cancer of the stomach, Dr. Shortt found it afford temporary relief. Mr. Taylor* quotes nineteen cases of vomiting, arising from various causes, treated with Creasote; in eightcen it proved successful. (Dr. Cormack.†)

988. *In Diarrhœa*, Creasote is occasionally effectual in arresting the discharge. Dr. Kesteven‡ states that he has found it so uniformly successful, that he rarely uses any other than the following formula:—℞ Creasote ♏j.—iv., Spt. Ammon. Arom. ♏xv., Aq. f℥iss., M. When there was much pain, T. Camph. Co. was added. He attributes its influence to its coagulating properties. Mr. Richardson § also speaks highly of its efficacy.

989. *In Hæmorrhage*, Creasote, internally and externally, has been used with advantage. *In Hæmoptysis*, it has been successfully employed by Bichthauer, Hoering, Reichenbach, and others. *In Hæmaturia*, it is stated to have proved useful. *In superficial Hæmorrhage from wounds, leech-bites, after the extraction of teeth*, &c., Creasote is an excellent styptic. Mr. Cormack‖ states, that by its means he arrested hæmorrhage from the carotid artery.

990. *In Diabetes*, Dr. Elliotson ¶ employed Creasote in three instances with apparently good effects. He commences with small doses (♏j.—iij.), and gradually increases the dose a drop every day or every other day, until it disagrees, when the dose may be diminished or discontinued. As it produced no action on the bowels, aperients were occasionally necessary; the urine, in each case, was much improved in quantity and character; and there was frequent micturition. Dr. Watson** also speaks favourably of it. He relates two cases, in which it produced "the happiest effects," and he quotes the experience of Dr. Mac Intyre, also, in its favour.

991. *In Glanders in the human subject*, Creasote is one of the few medicines which make any impression; and the effect of this is often very transitory. Dr. Elliotson, in 1835, employed it successfully in three cases. The nasal cavities should several times a day be thoroughly syringed out with Creasote, diluted with water; the abscesses should be opened as they form, and the patient's strength supported. These combined measures proved successful in the hands of Dr. Elliotson.

992. *In Chronic Bronchitis*, accompanied by excessive expectoration, the inhalation of the vapour of Creasote, mixed with

* Medico-Chir. Rev., No. xlvi. p. 541.

† On the Properties, &c. of Creasote, Edin. 1836. A valuable Memoir.

‡ Medical Gazette, Feb. 7, 1851.

§ Lancet, Oct. 25, 1851.

‖ Op. cit.

¶ Op. cit. p. 219.

** Lectures, vol. ii. p. 610.

that of boiling water (Creasoti ɱiij.—x., Aq. Ferv. Oss.), is useful in checking the secretion. It also corrects the fœtor of the sputa in *Dilatation of the Bronchi* and *Pulmonary Abscess* (Garrod*).

993. *Salivation from Mercury* is stated by Dr. Faulcon † to be speedily improved and cured by a gargle composed of f℥ss. of Creasote in Oj. of Sage tea. Any other mild vehicle may be substituted.

994. *In Gonorrhœa and Gleet*, Dr. Dick,‡ of Glasgow, successfully employed Creasote, and states that, in a chronic stage, it was of more obvious benefit than Copaiba. Dose, gutt. ij. daily, on sugar. In the hands of Drs. Elliotson and Hahn, the same treatment was unsuccessful.

995. *In Toothache*, a single drop of pure Creasote, applied to a carious tooth, affords occasionally immediate relief. (Elliotson.)

996. *In some Diseases of the Skin*, Creasote has been found useful; particularly in *Prurigo Senilis*, *Lepra*, *Psoriasis*, *Impetigo*, *Acne Indurata*, *Acne Rosacea*, and *Scabies*. It may be applied in the form of ointment (*ut supra*). *In Ringworm*, pure Creasote rubbed into the surface, is stated to be efficacious. *In Pruritus Pudendi*, a weak solution is sometimes useful.

997. *In Sloughing and Phagedenic Ulcerations*, the local application of pure Creasote has, in many instances, been found beneficial. Dr. Elliotson states that, under its use, he has seen foul ulcers become clean, and long-standing ones heal rapidly. *To indolent and mild Ulcers* a weak solution (gutt. vj.—xij., Aq. fl. oz. j.) may be applied.

998. *To Bed Sores*, Reichenbach's Lotion (1 part of Creasote to 80 of Water) is stated to be an efficacious application. It is also said to be a preventive.

999. *In Erysipelas*, Dr. Fahnstock,§ of Pittsburgh, speaks in praise of pure Creasote as a local application. It should be sufficiently strong to render the cuticle white immediately that it is applied, and should be pencilled over the whole of the inflamed surface, and for a small space beyond it. *In Phlegmonous Erysipelas*, the application should be made more frequently than in the idiopathic kind, and a cold bread poultice or a compress moistened with Creasote should be kept on the part. (Mr. E. Wilson.‖) *In Puerperal Fever*, Dr. Mackenzie¶ states that for several years he has used with great advantage Creasote injections, in strength varying from ɱviij.—xij., in Oj. of thin mucilage.

* Essentials of Mat. Med. and Therap., p. 140.

† Philadelphia Med. Examiner, 1849 (R).

‡ Edin. Med. Surg. Journ., vol. lviii. p. 602.

§ Amer. Journ. of Med. Sci., July 1848.

‖ Diseases of the Skin, p. 149.

¶ Brit. Med. Journ., March 3, 1860.

In Phlegmasia dolens, he* also recommends the use of Creasote injections daily.

1000. *In Ephelis*, Dr. Copland† suggests the internal exhibition of Creasote. He states that, in one instance in which he prescribed it, it was productive of great benefit.

1001. *To Tumours and Excrescences*, it has also been applied. Martin Solon applied Creasote successfully to *a venereal bubo*, which had resisted leeches, poultices, and Iodine. Dr. Heyfelder removed *excrescences from the anus* in a fortnight by its means, after the failure of other remedies. Hahn and Fricke found it serviceable in various kinds of *Condylomata*. (Cormack.‡) *Warts* are said by Mr. Rainey§ to be removable by Creasote freely applied, and kept *in situ* for two days by strips of adhesive plaster. It requires subsequently to be applied daily till desquamation ensues. *Nævus* may be removed, according to Bujalsky,‖ by pencilling it twice daily for some weeks with Creasote.

1002. *To Burns and Scalds*, dilute Creasote has been proposed as a local application by Sir F. Smith.¶ It is said to prevent the contractions of cicatrices.

1003. CRETA PRÆPARATA. Prepared Chalk. Carbonate of Lime, CaO,C_2, nearly pure. Chalk reduced to a very fine powder, and elutriated. Lime 56, Carbonic Acid 44, in 100 parts.

CALCIS CARBONAS PRÆCIPITATA. Precipitated Carbonate of Lime. Precipitated Chalk. CaO,CO_2. Prepared by precipitating a solution of Chloride of Calcium with Carbonate of Soda, collecting and drying at 212°.

Med. Prop. and Action. Antacid, absorbent, and astringent. If continued for any length of time, an occasional aperient is advisable, as it is apt to accumulate in the bowels, and form intestinal concretions. Like Liquor Calcis, it appears to have the effect of diminishing the secretion of the mucous membrane of the intestines, besides correcting any existing acidity. Hence it is termed an astringent. The medical properties and action of Precipitated Chalk are similar to those of Prepared Chalk, but the latter should be used in preparing Chalk Mixture, as Precipitated Chalk from its crystalline property is said to occasion irritation of the bowels (Squire**). Externally it is applied in fine powder to ulcers and excoriations.

Offic. Prep. Of Creta Præparata:—

1. Hydrargyrum cum Cretâ (See art. Hydrargyrum cum Cretâ).

2. Mistura Cretæ (Prepared Chalk oz. ½; Powdered Gum Arabic oz. ½; Syrup fl. oz. ss.; Cinnamon Water fl. oz. viiss.). Dose, fl. oz. j.—fl. oz. ij.

3. Pulvis Cretæ Aromaticus (Aromatic Powder [see Cinnamon] lbs. iij.; Prepared Chalk lb. j.). Similar to the Confectio Aromatica of the Lond. Pharm. Dose, gr. xxx.—gr. lx.

4. Pulvis Cretæ Aromaticus cum Opio (Aromatic Powder of Chalk oz. ix. ¾; Powdered Opium oz. ¼); gr. xl. contains gr. j. of Opium. The dose depends

* On Phlegmasia Dolens, Lond. 1862.

† Dict. Pract. Med., vol. i. p. 767.

‡ On the Properties of Creasote, op. cit.

§ Lancet, Dec. 8, 1855.

‖ Med Times and Gaz., Jan. 7, 1860.

¶ Dublin Journ., vol. xi. p. 237.

** Companion to Brit. Pharm., p. 69.

on the amount of Opium it is wished to administer. (This powder is intended to supersede the Pulvis Cretæ Comp. cum Opio of the Pharm. Lond., which contained Prepared Chalk, Cinnamon, Tormentilla, Gum Acacia, Long Pepper, and Opium—the last in the proportion of gr. j. in xl. of the powder.)

Dose of Creta Præparata and of Calcis Carbonas Præcipitata, gr. xx.—gr. lx.

Incompatibles. Acids; Acidulous Salts.

1004. *Therapeutic Uses. In Diarrhœa, arising from acidity of the primæ viæ*, and in some other forms of the disease, the Chalk Mixture (*ut supra*) proves of the greatest benefit. It may be advantageously combined with Aromatic Powder, Catechu, and Opium, as the circumstances of the case may require. In children and infants, the Pulvis Cretæ Aromaticus should be preferred. Its operation in these cases can hardly be attributed *solely* to its antacid property, as other antacids fail to produce the same astringent effects.

1005. *To Diseases of the Skin, Excoriations, Burns, and Ulcers, when accompanied by an acrid irritating discharge*, Chalk finely powdered, and sprinkled over the surface, is highly useful, absorbing the discharge, and thus preventing the disease extending. An emollient poultice should be placed over the whole surface.

1006. *In Chronic Bronchitis, in the advanced stages, particularly when colliquative sweats and Diarrhœa are present*, Dr. Copland * observes that the Mistura Cretæ is often very serviceable. He states that he has derived the most essential benefit from the following mixture; even where the bowels were regular, he found it by no means productive of costiveness:—℞ Mist. Cretæ f℥viss., Vin. Ipecac. f℥iss., Tinct. Opii f℥j. (vel Tinct. Camph. Co. f℥vj.), Syrup. Tolut. f℥iij., M. cap. coch. amp. ij. ter quaterve in die. A similar formula proved very effectual in the hands of Dr. Hastings.†

1007. Crocus Sativus. The Saffron Crocus. *Nat. Ord.* Iridaceæ. *Linn. Syst.* Triandria Monogynia. *Hab.* Asia, cultivated in Europe. Imported from Spain, France, and Naples. Saffron is the stigma and part of the style, dried.

Med. Prop. and Action. The stigmata (*off.*) were employed by Hippocrates and the ancients in uterine diseases; and, to within a recent period, were regarded as stimulant and emmenagogue; but the observations of Cullen and Alexander brought them into disrepute; they having failed to obtain any benefit from their use, even in large doses. If taken for a long period, Saffron communicates a yellow colour to the urine, perspiration, and other secretions. It is much used as a colouring agent and condiment. 100 parts contain 65 of a yellow colouring matter, *Polychroite*, and 7 of a volatile oil.

Offic. Prep. 1. Pulvis Aromaticus (see Cinnamomum).

2. Tinctura Croci (Saffron oz. j.; Proof Spirit Oj. Prepared by maceration and percolation). Dose, fl. drm. ss—fl. drs ij.

Dose of Saffron in infusion or powder, gr. x.—gr. lx.

* Dict. Pract. Med, vol. i. p. 263.

† Midland Med. Repos., vol. ii. p. 376.

1008. *Therapeutic Uses. In Chlorosis*, Saffron has been successfully employed by Dr. Morganti,* of Verona, who found it effectual after the salts of Iron had failed. He gave it in the form of pills gr. xvj. in twenty-four hours, and gradually increased the dose, until this quantity was doubled. He considers it peculiarly effective in cases of increased action of the capillary vessels, and analogous in its effects to the more active salts of Iron. Saffron has been supposed to be useful in the treatment of the *Exanthemata*. In *Rubeola*, Syrup of Saffron (Pharm. Lond.) is a popular remedy.

CROTON CASCARILLA. See COPALCHI.

CROTON ELEUTERIA. See CASCARILLA.

1009. CROTON TIGLIUM. Purging Croton. *Nat. Ord.* Euphorbiaceæ. *Linn. Syst.* Monœcia Monadelphia. *Hab.* The East Indies, Burmah, &c.

Med. Prop. and Action. All parts of the plant possess medicinal properties: *the root* is a drastic cathartic; *the wood* is sudorific, and in large doses purgative; *the dried leaves* have similar properties, and are a reputed antidote to the bite of the cobra; but *the seeds* are the parts chiefly employed, either prepared as below, or as the source of Croton Oil (OLEUM CROTONIS, OLEUM TIGLII). The seeds, in their native state, are powerfully poisonous; but when prepared as below, they are a safe and efficacious purgative. Boil the seeds thrice in milk; and after each boiling, dry them well, and carefully remove the outer shell and the embryo. If the latter is allowed to remain, it causes violent tormina and vomiting. To gr. lx. of the seeds thus prepared, add gr. lxx. of Catechu, and divide into two-grain pills; a few drops of Ol. Menth. Pip. may be advantageously added to the mass. This mode of preparation, first proposed by Dr. White,† renders the seeds a valuable resource to the Indian practitioner; and Mr. Marshall justly observes, "To the field surgeon it is no unimportant recommendation that 500 doses may be contained in a small wafer-box, and purchased for half a rupee." I have used these pills in some hundreds of cases, and have generally found their action uniform, producing five or six copious watery stools, and operating within two or three hours after being swallowed. Any excessive operation is almost immediately checked by a draught of Lemon-juice. Mr. E. Wilson speaks highly of a tincture (bruised seeds ℥j., Spirit. Rect. f℥iv.), as a local stimulating application in various skin diseases.

Therapeutic Uses. See CROTONIS OLEUM.

1010. *In Erythema, Eczema, Lichen, Prurigo, Ichthyosis, and other obstinate Skin diseases*, Mr. Erasmus Wilson‡ states that he has derived great benefit from a liniment composed of ʒj. of the Tincture of Croton (*ante*), Spirit of Rosemary f℥j., and Rose Water f℥iij.

* Mem. del Med. Contemp., 1842-3.
† Ainslie's Mat. Med., p. 294.
‡ Diseases of the Skin, p. 177, et seq.

1011. Crotonis Oleum. Oleum Tiglii. Croton Oil. The Oil expressed in England from the Seeds of Croton Tiglium (which see).

Med. Prop. and Action. Drastic purgative, in doses of gutt. ¼—ij.—iij. It may be given in the form of pill with bread crumbs; or, if the patient, from any cause, be unable to swallow, it may be placed at the root of the tongue, its full purgative action being equally attainable in this latter way. The smallness of the dose required, the rapidity of its action, and its powerful purgative effect, render it peculiarly valuable in Apoplexy and other cerebral affections. In some persons it produces, even when given in small doses, severe hypercatharsis, which has occasionally proved fatal. It appears to possess a specific action on the intestinal mucous membrane, as, when injected into a vein, it has caused death, and the whole length of the intestines has been found in a state of inflammation. It is more speedy in its operation than any other cathartic, producing copious watery stools in one or two hours, and sometimes in even a shorter period, after its administration. Alkalies are said to modify the acrimony of the oil, without impairing its cathartic properties, and the addition of a small portion of Opium diminishes the violence of its action. When its action is excessive, a draught of Lime or Lemon-juice affords almost immediate relief. Occasionally, it fails to purge. I have seen some cases in which three and even four drops have produced only one or two scanty stools, but in which fl. oz. j. of Castor Oil, subsequently given, has been followed by copious motions. In very large doses it acts as a powerful irritant poison. Externally applied, it is rubefacient; diluted with four to eight parts of Olive Oil or Soap Liniment, it produces a pustular eruption on the skin. As a counter-irritant, it is superior to Tartar Emetic, on account of the rapidity with which it acts, and in the greater amount of irritation which it occasions. Its external application sometimes produces purging.

Offic. Prep. Linimentum Crotonis (Croton Oil fl. oz. ss.; Olive Oil fl. oz. iiiss.).

Dose of Croton Oil, gutt. ¼—gutt ij.—iij. in pill or placed on the tongue; in combination with other purgatives, ♏¼ upwards.

It is contra-indicated—1, in all inflammatory states of the stomach and intestines; 2, in great debility.

1012. *Therapeutic Uses. In Cholera*, Croton Oil is strongly advised by Dr. M'Gregor.* If no blood can be drawn, he gives the following draught:—℞ Ol. Tiglii gutt. v., T. Hyoscyam. f℥j., Opium† (Hill) gr. v., Aq. f℥iss. If the spasms remain, and free bilious vomiting does not succeed, he administers these pills:—℞ Opium (Hill) gr. iij., Ol. Tiglii gutt. v., M. In case the symptoms continue, the pill is repeated at short intervals, until they subside and free vomiting ensue. The cold, clammy skin will then become warm and moist, and the tongue and the expired air participate in the healthy change. Nine grains of Opium and fifteen drops of Oil, in divided doses, he states, will, in general, produce this effect, but larger ones are sometimes required. Saline and Turpentine enemas were employed at the same time. He adds that every case thus treated recovered. Mr. Thom‡ also speaks highly of it in the Cholera of India.

* Obs. on the Diseases of Soldiers in the N. W. Provinces of India, Calcutta, 1843.

† Hill Opium is about half as strong as Turkey Opium.

‡ Med. Times, vol. xvi. 1847, p. 151.

He regards it as an invaluable remedy, when combined with Opium; and in many cases of vomiting, purging, spasm, &c., the disease was arrested at the outset.

1013. *In the Bilious Remittent Fevers of India*, Dr. M'Gregor* regards Croton Oil as one of the most efficacious remedies we possess. In full plethoric subjects, and in the first stage of fever, he bleeds once freely, then administers an emetic; and after its full operation, commences the use of Croton Oil and Opium in combination. (See *Cholera.*) Under the use of this formula, the gall-bladder is emptied of large quantities of dark bile, and the character of that secretion becomes greatly improved. He found Croton Oil succeed in procuring the evacuation of this vitiated bile, when Calomel, Jalap, and other purgatives had failed. In the severe forms of this fever, he regards this emptying the gall-bladder as a point of first importance; and asserts, that until this be accomplished, the lancet, Calomel, and other remedies, are incapable of checking the disease. Immediately after an intermission is induced, he gives Quinine (gr. x.), and continues its use in smaller doses at short intervals. He adds, that out of 300 cases thus treated, he only lost one! In old residents in India, the bleeding should be omitted, and ice applied to the head.

1014. *In the obstinate Constipation which accompanies Inflammation of the Brain, Mania, and other Cerebral Affections*, Croton Oil is especially valuable, acting not only as an aperient, but as a derivative and revulsive. *In Colica Pictonum*, it also proves effectual when other remedies fail. *In Apoplexy*, it is peculiarly adapted, from the ease with which it may be administered: placed at the back of the tongue, it operates freely.

1015. *In Dropsical Affections*, when hydragogue cathartics are indicated, Croton Oil is sometimes preferable to Elaterium, and other remedies of this class; but it is inadmissible when the patient is old and debilitated. Great caution is necessary in its use; it should be commenced in small doses, and gradually increased, according to the amount of purgation which it induces. *In Hydrocephalus*, it has been sometimes employed, but it is too powerful a remedy for ordinary cases. In some instances it appears to have been useful, when applied externally, as a counter-irritant.

1016. *In Albuminuria*, Dr. Heaton,† of Leeds, observes that, when it is advisable to administer a hydragogue cathartic, there is none so convenient as Croton Oil, which produces copious evacuations, with less sickness and discomfort than Elaterium.

1017. *In Neuralgia, Tic Douloureux, and Sciatica*, Mr. New-

* Op. cit. † Prov. Journ., April 1849.

bigging* found all the distressing symptoms disappear after the internal administration of Croton Oil. He considers that it possesses a specific power in these nervous diseases, apart from its purgative action. Mr. Hunt,† also, states that in Tic Douloureux arising from dyspepsia, he has derived great benefit from its use, particularly when it produces an emetic as well as a purgative action. It occasionally affords great relief when applied externally, as an embrocation, over the affected nerve.

1018. *Laryngismus Stridulus.* A case of this disease occurring in a child nine months old is mentioned by Mr. Newbigging ;‡ which, after resisting the usual remedies, yielded to the employment of Croton Oil, in doses of one-quarter of a drop.

1019. *In Prurigo Senilis*, the following liniment is stated to afford great relief:—℞ Ol. Croton. Tig. fl. drm. ss.—fl. drm. j., Ol. Olivæ fl. oz. j., M. *In Ringworm and Favus*, Mr. E. Wilson § advises an ointment composed of Ol. Tiglii gutt. xx., Cerati ʒj., M.

1020. *In Phthisis*, Rayer speaks highly of Croton Oil as a counter-irritant. He directs gutt. xxiv. to be rubbed over the chest with the palm of the hand. Applied in this manner, he states that it is attended with no danger, and affords very great relief to the distressing symptoms, particularly to the *Dyspnœa*. Owing to the thickness of the epidermis of the hand, it does not in the least affect the palm. *In Chronic Bronchitis, Chronic Pneumonia, and other Affections of the Lungs and Air-passages*, Croton Oil, diluted with four to seven parts of Olive Oil, proves a useful counter-irritant. *In Laryngeal Phthisis*, Dr. Graves‖ advises a liniment composed of Lin. Camph. Co. fʒj. and Ol. Tiglii ♏xx.—xxx., M.

1021. *In Chronic Rheumatism, Paralysis, Chronic Diseases of the Joints*, &c., a liniment composed of one part of Croton Oil, and two or three of simple oil, occasionally proves useful. It may be further diluted if it cause much irritation or pain.

1022. *Against Lumbrici and Tænia*, Wenzel regards Croton Oil as an effectual vermifuge. He says that it has this advantage, that when it is inadvisable to administer strong purgatives, a few drops of the oil rubbed in, over the abdomen, will often lead to the expulsion of the worms. It is, however, very uncertain in its operation when thus applied.

1023. CUBEBA. Cubebs. The dried unripe fruit of Cubeba Officinalis. Cubeb Pepper. *Nat. Ord.* Piperaceæ. *Linn. Syst.* Diandria Trigynia. *Source*, Java, Nepaul, Batavia, Guinea, and the Isle of France.

* Edin. Med. Surg. Journ., Jan. 1, 1841.

† On Tic Douloureux, 8vo. Lond. 1844.

‡ Edin. Med. Surg. Journ., Jan. 1, 1841.

§ Diseases of the Skin, p. 448.

‖ Clin. Lect., vol. ii. p. 125.

Med. Prop. and Action. Cubebs, in doses of gr. x.—gr. lx., is carminative and stimulant, and improves the tone of the digestive organs. In doses of gr. clxxx.—oz. j. it causes griping and purging, with much febrile action. It occasionally induces headache, a nettle-like eruption, and, in rare instances, partial paralysis. It acts specifically upon the genito-urinary organs, and increases the quantity of urine, to which it communicates a peculiar aromatic odour. Its operation is not confined to these organs; it being a stimulant of the mucous surfaces generally. It contains—1, *Cubebin*, which appears to be identical with Piperin; 2, a Resin; 3, a volatile oil (OLEUM CUBEBÆ), which is a very good form for internal use, in doses of ♏x.–xv., on sugar, in emulsion, or in capsules. The dose of the Tincture (Ph. L.) (Cubebs lb. j., Proof Spirit Oij) is fl. drs. iss.—fl. drs. ij., in emulsion, thrice daily.

Oleum Cubebæ is now officinal.

Dose of Cubebs, gr. xx.—gr. cxx; of the Oil, ♏v.—♏xx.

1024. *Therapeutic Uses. In Gonorrhœa*, Cubebs proves eminently serviceable. Of fifty cases treated by Mr. Broughton,* forty-five were cured by Cubebs, at periods varying from two to twenty-one days; in three, it failed to afford relief. Some constitutions are peculiarly susceptible of its action; and small doses, under such circumstances, produce great constitutional disturbance, and an aggravation of the symptoms. Its action is rendered more certain, by the addition of Sodæ Carb. gr. x. to each dose. Alum is stated greatly to increase its efficacy,† thus:—℞ Cubebæ oz. ij., Alum oz. ss., M., divide in pulv. ix., sumat. j. ter in die. The average duration of treatment under this formula was from six to eight days. Cases which resist the use of Copaiba generally yield rapidly under the use of Cubebs, and *vice versâ*. The oil of Cubebs (gutt. x.—xij.) may be substituted for the Pepper, and is best given in conjunction with Copaiba (see that article). Orchitis occasionally occurs under the use of this remedy; but it is doubtful whether this event can be fairly attributed to the medicine.

1025. *In Gleet and Leucorrhœa*, Cubebs, given in the manner advised in the last section, is productive of great benefit. Dr. Orr‡ employed it in several cases, and reports favourably of its efficacy.

1026. *In a case of Vaginitis*, which had resisted all other remedies for nine months, M. Piorry§ employed an injection of the infusion of Cubebs (℥j.—Aq. Oj.), and administered the powder internally. Under this treatment a speedy cure was effected. *In Infantile Enuresis*, Dr. Deiters‖ found Cubebs very effectual. For infants a few grains are sufficient, but older children require half a teaspoonful twice or thrice daily. He likewise found it very effectual in checking nocturnal emissions in *Spermatorrhœa*.

* Medico-Chir. Trans., vol. xii.

† Med. Chir. Rev., vol. lxviii. p. 514.

‡ Edin. Med. Surg. Journ., vol. xviii.

§ Gaz. des Hôpitaux, May 1842.

‖ Edin. Monthly Journ., Oct. 1854.

1027. *In Chronic Inflammation of the Bladder*, Sir B. Brodie * states that he has known the symptoms to be often much alleviated under the use of Cubebs; but it must be given only in small doses (gr. x.—xv. thrice daily). When administered largely, it proves injurious. Given with caution, in small doses, it proves very useful, not only where the chronic inflammation is the primary disease, but where it occurs as a secondary affection, the result of a calculus in the bladder, &c. *In Cystirrhœa*, he also found small doses of Cubebs very beneficial.

1028. *In Chronic Inflammation of the Prostate Gland*, Sir B. Brodie† found much benefit from Cubebs, in doses of gr. xx. thrice daily. It seems to act as a gentle stimulus to the parts.

1029. *In Hæmorrhoids or Piles*, the internal use of Cubebs has been found useful in allaying the severity of the symptoms. It forms an efficacious substitute for Piper Nigrum, and probably acts in the same manner. (See Piper Nigrum.)

1030. *In Chronic Bronchitis and other Pulmonary Affections*, attended with profuse secretion and much debility of constitution, Cubebs, in small and often-repeated doses, has a very beneficial effect in checking the excessive secretion, and giving a gentle stimulus to the system.

1031. Cuminum Cyminum. Common Cumin. *Nat. Ord.* Umbelliferæ. *Linn. Syst.* Pentandria Digynia. *Hab.* Egypt, Greece, Malta, &c.

Med. Prop. and Action. The fruit, Cumin seeds, are stimulant and carminative in doses of gr. xv.—gr. xxx. Active principle, a volatile oil.

Therapeutic Uses, as Carum Carui; rarely employed.

1032. Cuprum. Copper. A metal which, in its pure state, appears to exercise no sensible effects on the system; but which, in combination with acids, &c., acts as an irritant poison. Food cooked in copper vessels, by dissolving a portion of the metal, and converting it into salts, proves highly poisonous. In medicine, its chief value is as the base of the following salts:—

1033. Cupri Ammonio-Sulphas. Ammonio-Sulphate of Copper. Ammoniated Copper. (CuO, $SO_3 + 2\ NH_3$, HO.) Ammonia 27·64, Oxide of Copper 32·52, Sulphuric Acid 32·52, Water 7·32, in 100 parts; or 2 Eq. Ammonia = 34, + 1 Ox. of Copper = 40, + 1 Sulphuric Acid = 40, + 1 Water = 9 = 123, Eq. Wt.

* On Diseases of the Urinary Organs, p. 111.

† Op. cit., p. 149.

Med. Prop. and Action. Tonic, astringent, and anti-spasmodic. It should always be commenced in small doses, and cautiously increased. It occasionally produces serious effects if given in too large or too long-continued doses. Its action and properties are very similar to those of the Sulphate. For external use, the Liquor (Pharm. Lond.) (℥j. ad Aq. Dest. Oj.) is a good formula.

Dose, gr. ¼—gr. v.

Incompatibles. The Mineral and Vegetable Acids, Potash, Soda, Lime-water, and the Salts of most Metals.

1034. *Therapeutic Uses.* *In Chorea*, the Ammoniated Copper is recommended by Willan,* Ulwins,† Cullen,‡ and others. Dr. Walker§ found it most beneficial when its use was preceded by purgatives and other evacuants. Cullen prescribed it in doses of gr. ¼ or ½, gradually increased to gr. v. and upwards. *In Epilepsy*, it has also been favourably spoken of. Urban,‖ who found it productive of benefit, prescribes gr. viij., to be divided into forty-eight pills, of which three are to be taken night and morning, increasing the dose by one pill each second day. *In Catalepsy and aggravated Hysteria*, its internal use, in small and increasing doses, has been advised, but it is rarely employed at the present day. In the two former affections, this salt is inferior to the Sulphate of Zinc.

1035. *In Ague*, the Ammonio-Sulphate was formerly esteemed: it is advised by M'Causland,¶ Bianchi,** and others. The latter writer also advises its employment in *Chronic Diarrhœa*.

1036. *In Gonorrhœa and Leucorrhœa*, an injection composed of ♏xv. of the solution (*ut supra*), and fl. oz. ij.—fl. oz. iij. of water, is occasionally serviceable; but there are many other injections more safe and equally efficacious.

1037. *In Opacity of the Cornea*, the Liquor (*ut supra*) diluted with two or three parts of water, has appeared in some instances to hasten the process of absorption. *To indolent and ill-conditioned Ulcers*, the undiluted liquor is a good stimulating application. *In Prurigo Genitalium*, a solution of the Salt (gr. xv. ad Aq. Dest. f℥ij.) is stated by Pereira†† to have been successfully used as a wash.

1038. CUPRI DIACETAS IMPURA. Impure Diacetate or Subacetate of Copper. Ærugo. Verdigris. (2 CuO, Ā + 6 HO.) Oxide of Copper 43·24, Acetic Acid 27·57, Water 29·19, in 100 parts.

Med. Prop. and Action. Powerful irritant poison, never given internally. The powder and the Linimentum Æruginis (Pharm. Lond.) (Verdigris ℥j.,

* Med. and Phys. Journ., vol. vii.

† Edin. Med. and Surg. Journ., vol. viii. p. 408.

‡ Mat. Med., vol. ii. p. 25.

§ Edin. Med. Comment., vol. iv. p. 288.

‖ Hufeland's Journal, 1827, quoted by Copland.

¶ Edin. Med. Comment., vol. viii. p. 250.

** Brera's Commentaria Medici, t. ii. n. 2.

†† Mat. Med., vol. i. p. 877.

Vinegar f℥vij., Honey ℥xiv.), are occasionally applied externally when stimulants are indicated. The latter should be applied with a camel's hair brush.

1039. *Therapeutic Uses. Indolent and foul Ulcers* often improve under the use of the Liniment (*ut supra*); but there are many other formulæ equally efficacious, less liable to decomposition, and more easily prepared.

1040. *Venereal Vegetations and Warts* scarcely ever withstand the effects of the powder of Savine and the Diacetate of Copper. (S. Cooper.) It is an effectual application in these cases.

1041. Cupri Nitras. Nitrate of Copper. $CuO, NO_5, 3\,HO$. A powerful caustic and escharotic, stated by Dr. Fleming* to be very superior to all other caustics, in *Lupus, Malignant Ulcers, and also in those small excavated semi-phagedenic Ulcers* which occur on the genital organs, both of the male and female. It is very deliquescent, and can only be applied in a liquid state, the surrounding parts being well protected by oil, &c.

1042. Cupri Sulphas. Sulphate of Copper. CuO,SO_3+5HO. Blue-stone. Blue Vitriol. A compound of Oxide of Copper 32, Sulphuric Acid 32, Water 36, in 100 parts; or 1 Eq. Oxide of Copper = 40, + 1 Sulphuric Acid = 40, + 5 Water = 45 = 125, Eq. Wt.

Med. Prop. and Action. Tonic and astringent, in doses of gr. ¼—gr. ij. In small doses it produces no sensible effect on the system; but under its continued use, the secretions diminish, the appetite increases, the pulse becomes stronger and fuller, and it acts as a general tonic and astringent. It also acts as a stimulant and tonic on the nervous system. In doses of gr. iij.—iv.—xij., it proves emetic, and without causing much depression of the system. In larger doses it is a powerful irritant poison. Externally it is applied in substance, to destroy unhealthy and excessive granulations, and as a styptic to bleeding surfaces. In solution (gr. j.—x. ad Aq. fl. oz. j.) it is used as a collyrium, wash, &c.

Dose, as a tonic and astringent, gr. ¼—gr. ij.; as an emetic, gr. iij.—gr. xij.

Incompatibles. Alkalies, and their Carbonates; all Acids, excepting the Sulphuric; the Salts of Lead and Silver; Corrosive Sublimate; the Chlorides; and all vegetable infusions and tinctures.

1043. *Therapeutic Uses. In Chronic Dysentery and Diarrhœa,* a combination of Sulphate of Copper and Opium proves highly serviceable. Amongst others, Dr. J. Brown† speaks favourably of it; and Mr. Raleigh‡ records many cases which recovered under the use of the following formula:—℞ Cupri Sulph. gr. ¼—½, Pulv. Opii gr. ½, M. ft. pulv. ter in die sumend. I have seen much benefit from this formula, substituting gr. v. of Dover's Powder for the Opium, as advised by Mr. Raleigh. *In the obsti-*

* Dublin Quart. Journ., Aug. 1850.
† Cyc. Pract. Med., vol. i. p. 661.
‡ Trans. of Med. Society of Calcutta, vol. vii. p. 66.

nate Diarrhœa of Phthisis, Dr. Watson* states that it often is effectual, in doses of gr. ¼, combined with gr. ¼ of Opium. It occasionally causes griping. *In the Chronic Diarrhœa of Infants*, Dr. Pereira† states that he has often employed it with the most excellent effects, in doses of ½ of a grain.

1044. *In Croup*, the Sulphate of Copper is a favourite remedy in Germany. Dr. Ure,‡ after remarking that it checks excessive mucous secretion from the lining membrane of the bronchial tubes and cells, states that Hoffman first employed it instead of Calomel in Croup. During the prevalence of an epidemic Croup, he gave it in cases of bronchitis and tracheitis, in doses of gr. ¼—⅛, according to the age of the child, every two hours. If laryngitis were present, he ordered it in doses of gr. iij.—iv. (after depletion), to excite vomiting; and followed it up with the small doses, every quarter or half hour. It has since been employed by De Serto, Hufeland, Droste, and others; and, in the majority of instances, with marked success. Zimmerman§ also relates cases successfully treated with it. It should not interfere with the external use of leeches (if local depletion be indicated) hot-water fomentations, &c.

1045. *In the Sore Throat of Scarlet Fever*, Mr. Green,‖ of Peckham, advises a gargle composed of Cupri Sulph. gr. j., Aquæ f℥j., to be applied every hour.

1046. *In Cancrum Oris, Aphthous Ulceration, and Gangrenous Affections of the Mouth*, the Sulphate of Copper (gr. v.) finely powdered, and thoroughly incorporated with oz. ss. of honey, is an excellent application. Dr. Symonds¶ advises its application in substance to aphthous ulcers.

1047. *In Chorea and Epilepsy*, the Sulphate of Copper, given in small and gradually increasing doses, has occasionally been found effectual; but, as a general remedy, it is inferior in efficacy to the salts of Zinc or Iron. Dr. Hawkins** speaks highly of its efficacy in Epilepsy, given in ¼ gr. doses with the Sulphate of Quinine. It failed, however, in the hands of Drs. Home, Hook, and others.

1048. *In Phthisis*, the Sulphate of Copper, as an emetic, has been advised by Drs. Reid, Simmons, and others, as producing less subsequent debility than Antimony or Ipecacuanha. Mr. Adair†† directs that the patient should first drink a pint of warm water, and then one grain of the Sulphate of Copper, dissolved in f℥ss. of water, with one drop of Sulphuric Acid. This is to be taken every evening for three successive evenings, and then

* Lectures, vol. ii. p. 216.
† Mat. Med., vol. i. p. 874.
‡ Compendium of the Materia Medica, 1838.
§ Brit. and For. Med. Rev., vol. ii. p. 568.
‖ The Institute, Feb. 1, 1851.
¶ Lib. of Med., vol. iv. p. 35.
** Med. Gaz., vol. viii. p. 183.
†† Med. Commentaries, vol. xviii. p. 473.

every morning. (On the value of this and other emetics in Phthisis, see EMETICS.)

1049. *In Gonorrhœa*, an injection of the following solution has been found useful:—℞ Cupri Sulph. gr. iv.—v., Liq. Plumb. Diacet. f℥ss., Aq. f℥iv., M.

1050. *In Leucorrhœa*, a solution (gr. xx.—gr. xxx. in Aq. Tepid. Oss.) has occasionally been found useful, when thoroughly injected into the vagina, thrice daily. The vagina should be previously washed out with soap and water. (Dewees.*)

1051. *In Dropsy*, Dr. Wright† employed, with benefit, a combination of Sulphate of Copper (in doses of ½ grain) and Opium. In asthenic cases it may prove useful.

1052. *In obstinate Hysteria*, Sir B. Brodie‡ speaks favourably of a long-continued course of the Sulphate, in small doses.

1053. *In Superficial Hæmorrhage from Leech-bites*, the local application of the Sulphate is an effectual styptic. *In Passive and Copious Epistaxis*, a weak solution of the Sulphate injected into the nostril, proves serviceable. It is, however, inferior to Alum.

1054. *In Purulent Ophthalmia in Infants*, a collyrium composed of Cupri Sulph. gr. j. in Aquæ Camph. fl. oz. j., is occasionally serviceable. *In Granular Conjunctivitis*, the application of the Sulphate, in substance, to the inner part of the lids, is favourably spoken of by Sir W. Wilde.§

1055. *Diseases of the Skin. In Tinea Capitis*, Dr. Graves‖ found a solution of the Sulphate (gr. x. ad Aq. f℥j.) a most useful local application. It should be applied in the manner advised in sect. 356. *In Ringworm*, a very effectual remedy is composed of Cupri Sulph. gr. xx., Pulv. Gallæ gr. lx., Aq. fl. oz. j., M. *In Scabies*, a solution of the Sulphate (℥j. ad Aq. Oj.) has been successfully employed by Mr. Lloyd¶ in a large number of instances. Previous to its use, the scabs should be rubbed off. *In Ichthyosis*, Mr. Erasmus Wilson** speaks of the following as a useful application:—℞ Cupri Sulph. ℈j., Ung. Sambuci ℥j., M. To be used twice or thrice daily. *To Molluscum*, Dr. Thompson†† applied with benefit the Sulphate in substance. *To remove Warts*, M. Cazenave employs a strong solution of this salt.

1056. *To weak, irritable, and indolent Ulcers*, the local application of a solution of Sulphate of Copper is attended with excellent effect. In the treatment of the ulcers of the Tenasserim Provinces, which are generally of a peculiarly obstinate character, I have

* Diseases of Females, p. 75.
† Lond. Med. Journ., vol. i. p. 266; vol. x. p. 149.
‡ On Local Nervous Affections, Lond. 8vo. 1837.
§ Dub. Quart. Journ., No. x. p. 97.
‖ Clin. Lect., vol. ii. p. 357, and Dub. Journ., vol. xviii.
¶ Lancet, April 4, 1846.
** Diseases of the Skin, p. 383.
†† Loc. cit., p. 388.

met with great success by employing solutions of graduated strengths, from one grain to ten grains in the ounce of water. At the commencement, the weakest solution is applied, twice daily; and when this ceases to occasion a feeling of heat in the ulcerated surface, the strength should be gradually increased by single grains, till the ten-grain solution is borne, by which time the ulcer is generally almost healed. In obstinate cases, these solutions may be alternated with others containing Nitrate of Silver, or Sulphate of Iron. *To repress Exuberant Granulations*, the Sulphate in substance should be employed. Alteratives should also be given internally.

1057. CURCAS PURGANS. Jatropha Curcas. Physic-Nut Tree.

CURCAS MULTIFIDUS. Jatropha Multifida. Spanish Physic-Nut Tree. *Nat. Ord.* Euphorbiaceæ. *Linn. Syst.* Monœcia Monadelphia. *Hab.* The West Indies, Brazil, &c. The C. Purgans is found in Ceylon.

Med. Prop. and Action. The seeds of these plants contain an acrid oil, which holds an intermediate place between Croton and Castor Oil, from both of which, however, it differs by its slight solubility in Alcohol. Dr. Christison considers that gutt. xij.—xv. of the oil equals ʃ ʒj. of Castor Oil. The seeds are extremely acrid, a few grains acting as a powerful irritant poison. Lemon-juice would probably prove the best antidote. They might perhaps be a valuable resource to the West Indian practitioner, if prepared in the manner advised for the Croton seeds. (See CROTON TIGLIUM.) A decoction of the leaves is said to increase the secretion of milk.

1058. CURCUMA. Turmeric. The Rhizome of Curcuma Longa. *Nat. Ord.* Zingiberaceæ. *Linn. Syst.* Monandria Monogynia. *Source*, Ceylon, Bengal, Madras, Burmah, &c.

Med. Prop. and Action. Stimulant and carminative; but it is never given internally, except as a condiment. If taken in large quantities, it is stated to communicate a greenish hue to the stools. Its principal use in pharmacy is as a test for alkalies, which render it reddish or brown.

Offic. Prep. Tincture of Turmeric (Bruised Turmeric oz. j.; Proof Spirit fl. oz. vj. Macerate seven days and strain.) Used to prepare the following:—Turmeric Paper (unsized paper steeped in Tincture of Turmeric and dried by exposure to the air).

1059. *Therapeutic Uses. In Coryza*, inhaling the fumes of burning Turmeric is a common Hindoo remedy. I have seen it tried in numerous instances, and have rarely seen it fail to afford more or less immediate relief. The best mode of application is to place a small piece of burning Turmeric under a small funnel, and to draw the vapour up the nostrils as it passes through the small aperture.

1060. *To relieve the burning of the Eye in Ophthalmia*, a decoction of Turmeric, applied cold to the eye, on a piece of linen, is often remarkably effectual. I have often used it with advantage.

1061. CUSPARIA. Cusparіæ Cortex. Angusturæ Cortex. Cus-

paria or Angustura Bark. Obtained from Galipea Cusparia, *St. Hil.;* Galipea Officinalis, *Hancock*. Formerly attributed to Bonplandia Trifoliata. *Nat. Ord.* Rutaceæ. *Source*, the tropical parts of South America. Native name of the tree, *Orayuri;* of the bark, *Carony*.

Med. Prop. and Action. Tonic, stimulant, and aromatic. It is best given in infusion, in doses of fl. oz. iss.—fl. oz. ij. In larger doses it induces nausea. Taken internally it promotes digestion, increases the appetite, expels flatus, and does not cause constipation. By some it is believed to possess antiperiodic properties. When chewed, it leaves for some time a sense of heat and pungency in the throat and fauces. Active principles, 1, a crystalline principle, which has been named *Angusturine*, and *Cusparine;* 2, a volatile oil; 3, a resin.

Offic. Prep. Infusum Cusparie (Cusparia in coarse powder oz. ss.; Distilled Water at 120° fl. oz. x. Infuse for two hours and strain). Dose, fl. oz. j.—fl. oz. ij.

Dose of Powdered Bark, gr. x.—gr. xl.

Incompatible with the Infusion. The Sulphates of Iron, Zinc, and Copper; Nitrate of Silver; Bichloride of Mercury; Salts of Lead; Tartar Emetic; Infusions of Galls and Catechu.

1062. *Therapeutic Uses. In Intermittent Fevers*, it was at the time of its introduction (1788) considered equal, if not superior, to Cinchona. More recently, Mr. Brande * has spoken favourably of its febrifugie properties, and relates instances in which it proved successful. Alibert, however, gave it a fair trial, and found it of little value; and general experience has pronounced the same verdict. In South America, however, it has been much employed in the treatment of *low malignant fevers* occurring in marshy districts. (Garrod.†)

1063. *In Atonic Dyspepsia*, Cusparia proves serviceable. It does not oppress the stomach like some other tonics; and under its use the tone of the digestion often rapidly improves. Cinnamon is a good adjunct; and it may be advantageously combined with Rhubarb, Alkalies, &c.

1064. *In the latter stages of Diarrhœa and Dysentery*, it may be given with advantage. *In the Diarrhœa of Children*, when the fæces are loaded with mucus, it proves useful. Dr. Lettsom ‡ speaks highly of its efficacy.

1065. *In Debility, Hysteria*, or whenever a light tonic is indicated, Cusparia in infusion will be found efficacious.

1066. Cusso. Kousso. Kusso. The dried flowers of Brayera Anthelmintica. *Nat. Ord.* Rosaceæ. *Linn. Syst.* Icosandria Digynia. *Source*, Abyssinia.

Med. Prop. and Therap. Uses. Anthelmintic. It destroys entozoa, but from possessing little or no cathartic power, it fails to expel them without the subsequent administration of a purgative (Garrod.)§ It should be taken

* Experiments and Observ. on the Angustura Bark, Lond. 1791.

† Essentials of Mat. Med. and Therap., p. 178.

‡ Memoirs of Med. Soc. of Lond., vol. i.

§ Essentials of Mat. Med. and Therap., p. 204.

fasting, in the form of infusion, or in that of electuary with honey. It has been principally administered in cases of *Tænia* or *Tape-worm*, and it appears to act efficiently in killing the worm. It was first brought prominently forward by Dr. Aubert,* who resided some years in Abyssinia. On his representations, the Faculty of Medicine at Paris, in 1848, appointed a commission to inquire into its virtues. Their report was most favourable, and it has since been extensively employed, not only in France and Germany, but in England, where it has been prescribed by Drs. Budd, Todd, Gull, Armstrong, Wills, Pereira, &c., all of whom bear testimony to its value.† It partially failed in the hands of Dr. Barclay.‡

Offic. Prep. Infusum Cusso (Kousso in coarse powder oz. ¼; Boiling Distilled Water fl. oz. iv. Infuse for fifteen minutes without straining). Dose (including the infused flowers), fl. oz. iv.—fl. oz. viij.

Dose of Kousso for an adult, oz. ss.; for a child of 7 to 12 years, gr. cl.; from 3 to 7 years, gr. cxx.; for children not exceeding 3, gr. lx.—gr. xc.

The administration of Kousso, either in infusion or electuary, should be followed by a mild aperient.

1067. CYDONIA VULGARIS. The Common Quince. *Nat. Ord.* Pomaceæ. *Linn. Syst.* Icosandria Pentagynia. *Hab.* India, cultivated in Europe.

Med. Prop. and Action. The seeds (Cydonium) are demulcent, and in decoction (gr. cxx., Water Oj.; boil ten minutes and strain) may be used locally, *in aphthous affections, excoriations of the mouth, in some forms of ophthalmia*, &c. It is of little value.

CYTISUS SCOPARIUS. See SAROTHAMNUS SCOPARIUS.

1068. DAPHNE MEZEREUM. Common Mezereon. Spurge Laurel. *Nat. Ord.* Thymelaceæ. *Linn. Syst.* Octandria Monogynia. *Hab.* Europe.

Med. Prop. and Action. The bark (*off.*) is stimulant, diaphoretic, and diuretic. It is rarely given alone, but chiefly in combination with Sarsaparilla. Of the simple decoction (drs. ij., Liquorice-root oz. ss., Water Oij., boiled to Oiss.) the dose is fl. oz. ij., three or four times daily. Its operation is very uncertain, in some instances producing no sensible effect, whilst in others its continued use is followed by disturbance of the cerebro-spinal system, and sometimes by strangury. In large doses it produces vomiting and purging. Dr. Cullen observes that it frequently communicates a filamentous appearance to the urine. Externally applied, the bark is irritant and vesicant; it should be first steeped in hot vinegar and applied to the skin by a compress and bandage: it requires to be applied fresh night and morning, until it produces vesication. On account of its acridity it has been proposed as a substitute for Savine Ointment, in keeping a blister open. Active principles, 1, an acrid resin; 2, a peculiar crystalline principle (*Daphnin*); and 3, an acrid volatile oil. These principles appear to be dissipated by boiling.

Offic. Prep. Decoctum Sarzæ Compositum (see SARSAPARILLA).

Dose of the bark, gr. x. infused in fl. oz. ij. of Water, twice or thrice daily.

1069. *Therapeutic Uses. In Chronic Rheumatism*, Mezereon has long been highly esteemed. Though inferior to many other

* Bull. de l'Acad. Roy. de Méd., March 15, 1841.

† See Dub. Med. Press, July 17, 1850.

‡ Med. Times, Oct. 18, 1851.

remedies of the same class, it acts powerfully on the skin, and by this means frequently affords great relief to the patient.

1070. *In Primary and Secondary Syphilis*, Mezereon was held in high esteem by Russel, Home, and others; but Mr. Pearson,* after extensive trials with it, states that he never found it possessed of any medicinal virtue, either in Syphilis or in the sequelæ of that disease; "nor," he adds, "in scrofula or cutaneous affections."

1071. *In Lepra and Psoriasis*, it occasionally proves useful. Cullen speaks favourably of it; but it appears to be a remedy of minor importance.

1072. *In Hysterical Pains in the Left Side*, Dr. Copland† found benefit from the moistened bark of Mezereon, worn for some time in contact with the skin, so as to produce a superficial sore. He also speaks highly of its benefit in *Angina Pectoris*.

1073. DAPHNE LAUREOLA and DAPHNE GNIDIUM are used in France in the place of Daphne Mezereum, both internally, and as a vesicatory. They all possess similar properties.

1074. DAUCUS CAROTA. The Garden Carrot. *Nat. Ord.* Umbelliferæ. *Linn. Syst.* Pentandria Digynia. Cultivated in all parts of the world.

Med. Prop. and Action. The fruit (seed) is diuretic and carminative, but the root is the part most in use as a poultice, which is made of the boiled root, beaten into a smooth consistence with water. If the raw root be used, it will produce violent irritation.

Dose of fruit, gr. xx.—gr. lx.

1075. *Therapeutic Uses. In Cancer of the Uterus*, Dr. Dewees‡ states that a strong decoction of Carrots, used as a vaginal injection, has "the happiest effects" as a palliative.

1076. *To malignant Ulcers of the Tongue*, Mr. Earle § advises the pulp of boiled Carrots to be retained on the ulcer, and frequently changed. At the same time, he advises Henbane internally.

1077. *To fetid, ill-conditioned, and phagedenic Ulcerations*, the Carrot poultice (*ut supra*) is an excellent application.

1078. *In Flatulent Colic, Atonic Dyspepsia, and Calculous Affections*, the seeds were formerly in repute, but are now obsolete.

1079. DELPHINIA. An Alkaloid. The active principle of Delphinium Staphisagria. *Formula*, $C_{27}\ H_{19}\ NO_2$. (Garrod.)

* Obs. on Various Arts. of Mat. Med., p. 49.

† Dict. of Pract. Med., vol. ii. p. 289.

‡ Diseases of Females, p. 276.

§ Med. Chir. Trans., vol. xii. p. 286.

Med. Prop and Action. Pure Delphinia has little effect upon the mucous membrane of the stomach and bowels. It may be administered, in some cases, to the extent of gr. iij.—iv. daily, in doses of gr. ¼, without exciting vomiting. In this quantity, however, it sometimes operates on the bowels, but causes very little irritation. In most instances it acts as a diuretic, and occasions a considerable flow of pale urine. When taken to the extent of gr. iv., it gives rise to sensations of heat and tingling in various parts of the body, similar to those which are produced by rubbing it on the skin; and its other effects are very similar to those of Veratria. Its external application causes a sensation of burning, not unlike that after the application of a blister, but not to an unpleasant degree, unless the friction has been too long continued. It produces a slight redness of the skin, which lasts from a few minutes to one or two hours. (Turnbull.*) It may be applied in the form of solution (gr. xl. ad Spirit. Rect. fl. oz. xij.) or in ointment (gr. xxx., Olive Oil fl. drm. j., Lard oz. j.).

Dose, gr. ¼—gr. ½. Seldom administered.

1080. *Therapeutic Uses. In Tic Douloureux, Rheumatism, and Paralysis*, its external application is stated by Dr. Turnbull to be very efficient. *In Neuralgia in the Tongue, or at the point where the infraorbital nerve escapes from its foramen*, it is to be preferred to the other alkaloids, because it can be applied to the tongue or gums without occasioning much irritation. *In Paralysis*, it appears more useful than Veratria, from its property of exciting the circulation in the affected part.

1081. DELPHINIUM STAPHISAGRIA. Stavesacre. Louse Wort. *Nat. Ord.* Ranunculaceæ. *Linn. Syst.* Polyandria Trigynia. *Hab.* Southern Europe and Asia Minor.

Med. Prop. and Action. The seeds are cathartic, emetic, and anthelmintic in small doses, but are so violent in their operation that they are very seldom given internally. In large doses they are an acro-narcotic poison. When chewed, they cause a great flow of saliva, and have consequently been used as a masticatory. Externally the bruised seeds have been used to destroy lice: hence its English name. Active principle, *Delphinia* (which see).

Dose, gr. iij.—gr. x. in powder or decoction; rarely prescribed.

1082. *Therapeutic Uses. In Scabies*, Staphisagria seeds have obtained great repute as a certain remedy. M. Bourguignon,† who prefers it to all other remedies, directs 300 parts of finely-powdered Staphisagria to be stirred into 500 parts of boiling lard, and the temperature to be kept up at 212° F. for twenty-four hours. After straining, a little essence may be added. Baths should be taken before and during the treatment, and the frictions should be made four times daily. Under this treatment, the average duration of cure is four days. Dr. Burgess‡ bears testimony to the value of a strong alcoholic solution of Staphisagria.

* On the Med. Prop. of the Ranunculaceæ, pp. 114—118.

† Brit. and For. Med. Chir. Rev., Jan. 1851.

‡ Lancet, April 4, 1846.

1083. DEXTRINA. Dextrine. Gum Starch. $C_{12}H_9O_9,HO$. Is obtained from Starch in three ways: 1, by carefully heating it to about 300°; 2, by the action of diastase; and 3, by heating Starch paste with Water acidulated with Sulphuric or very dilute Nitric Acid (1,000 parts of Potato Starch are moistened with 300 parts of Water, to which 2 parts of Nitric Acid have been added, and dried in a stove heated to 240°). In many of its properties it closely resembles Gum.

Med. Prop. and Therap. Uses. To form an immovable apparatus for fractures and diseases of the joints, moisten 100 parts of Dextrine with Spirit of Camphor, and add 40 parts of water. It should bo of the consistence of molasses. The bandages should be soaked in this mixture, and applied in the usual manner. It is stated to be very superior to the ordinary starched or gummed bandage.

As a demulcent drink, it is much employed in France as a substitute for Gum.

1084. DIGITALINUM. Digitaline. The bitter, non-nitrogenized, amorphous principle of Foxglove; called, also, Picrin.

Med. Prop. and Action. In doses of $\frac{1}{60}$—$\frac{1}{30}$ of a grain, in pill, or dissolved in Alcohol, it produces all the characteristic effects of Digitalis. It is about 100 times as strong as the dried leaves; applied to the nose, it causes violent sneezing. Drs. Bouchardat and Sandras* found that, in doses of from $\frac{1}{12}$—$\frac{1}{6}$ of a grain, it produced diuresis, and a great diminution in the force and frequency of the pulse. Its powerfully sedative effect is not confined to the circulatory system alone, but extends to the nervous system, and to the generative organs particularly; hence its powers as an aphrodisiac, which are considerable. The "Granules" of Homolle and Quevenne, much used on the Continent, are prepared as follows:—Digitaline grs. xvss.; Sugar ʒiss.; Water q. s. Mix well together, and divide into one thousand granules, like comfits. The dose is one, four or six times daily.

Dose, gr. $\frac{1}{60}$—gr. $\frac{1}{30}$. It must be prescribed with great caution, and the patient carefully watched.

1085. *Therapeutic Uses. In Diseases of the Heart and Pulmonary Affections,* Dr. Hervieux † successfully employed Digitaline. In doses of from gr. $\frac{1}{10}$ to $\frac{1}{4}$, it did not cause nausea, purging, or any ill effects. In all the cases the pulse fell in a remarkable manner, the average diminution being from 22 to 36 pulsations in a minute. The action of the medicine began to evidence itself after two or three hours; but attained its maximum only after one, or even two weeks. The urinary secretion was not constantly increased in quantity; but in all cases much vesical tenesmus was present. *In Dropsy and Dropsical Affections, especially when connected with Heart disease,* Digitaline has been used with satisfactory results by Homolle and Quevenne,‡ Bouchardat,§ Hervieux,‖ Christison,¶ and others; but it does not seem to possess any marked superiority over Digitalis itself.

* Ann. de Thérapeutique, 1845, p. 60.

† Archives de Médecine, 1848.

‡ Répert. de Pharm., Dec. 1834.

§ Op. cit.

‖ Op. cit.

¶ Monthly Journ. of Med. Sci., Jan. 1855.

The following formula is advised by M. Falken:—℞ Digitalin. gr. ¾, Pulv. Scillæ, Pulv. Scammon. āā grs. lxxv., Mucilag. q. s., M. ft. pil. 100. Of these, two, then four, and lastly six, are to be given daily according to the effect produced.

1086. *In Spermatorrhœa*, it proved effectual in the hands of Corvisart,* Charrier and Homolle,† Laroche,‡ and others. The dose employed was three of Homolle's granules (*ante*) daily. Its effects are said to be very marked.

1087. In addition to the above, it has been used in *Mania, Epilepsy, Phthisis, Intermittents*, &c.; but the results appear to have been nothing remarkable. With regard to its local use in *Skin Diseases*, as advised by M. Dumont,§ two strong objections exist: 1, the danger of its becoming absorbed into the system; and 2, the great local irritation it causes.

1088. DIGITALIS PURPUREA. Purple Foxglove. *Nat. Ord.* Scrophulariaceæ. *Linn. Syst.* Didynamia Angiospermia. *Hab.* England, and Western Europe.

Med. Prop. and Action. The leaves (*off.*) are sedative to the heart's action and diuretic. Their activity depends upon a peculiar bitter principle, *Digitaline.* Pereira‖ divides the action of Digitalis into three stages:—1. *In the first degree*, Foxglove sometimes affects the organic functions, without disordering the animal or cerebro-spinal functions. Thus we sometimes have the stomach disordered, the pulse altered in frequency, and occasionally also in fulness and regularity, and the secretion of urine increased without any other marked symptom. These symptoms are not uniform. *In the second degree*, or in that resulting from too large or too long-continued doses, there is a disordered state of the alimentary canal, of the circulating organs, and of the cerebro-spinal system. The most ordinary symptoms are nausea, or actual vomiting, slow and often irregular pulse, coldness of the extremities, syncope, or a tendency to it, giddiness and confusion of vision. The nervous system is sometimes much affected; external objects appear of a green or yellow colour; the patient fancies that there is a mist or sparks before his eyes; there is a weight and pain in the forehead, weakness of the limbs, loss of sleep, stupor, or delirium. *In the third degree*, or that resulting from fatal doses, all these symptoms are present in an aggravated degree. Convulsions, with a dilated, insensible pupil, generally precede death. Dr. Garrod¶ observes that, although Digitalis acts powerfully on the heart, it does not appear to control morbid states of the capillary circulation so powerfully as antimonial and mercurial preparations. It occasionally acts as a soporific, but, according to Garrod, only where restlessness and *insomnia* are produced by an over-excited state of the heart.

Offic. Prep. 1. Digitalinum (see art. DIGITALINUM).

2. Infusum Digitalis (Dried Digitalis grs. xxx.; Boiling Distilled Water fl. oz. x. Infuse one hour and strain). Dose fl. drs. ij.—fl. oz. ss., or more, every four or six hours.

3. Tinctura Digitalis (Bruised Digitalis oz. iiss.; Proof Spirit Oj. Prepared by maceration and percolation). Dose ℥lv.—℥lxl.

Dose of powdered leaves, gr. ¼—gr. ij.

The effect of Digitalis on the Pulse. Dr. Baildon** first noticed the effect of posture, in ascertaining the real effects of Digitalis on the pulse. 'When, by

* L'Union Méd., April 1853.
† Ibid., July 1854.
‡ Bull. Gén. de Thérap., 1854, vol. xvii. p. 76.
§ Ann. de Thérap., 1853, p. 128.
‖ Materia Medica, vol. ii. p. 1388.
¶ Essentials of Mat. Med. and Therap., p. 264.
** Edinb. Med. Surg. Journ., vol. iii.

gradually increased doses, he took it to the extent of gr. vj. in the day, the pulse fell from 110 to 40. When it was actually 40, the erect posture would raise it to 100; when sitting, it was 72; and when lying down, it was 40. The same effect was observed in several individuals. These facts should be borne in mind when administering Digitalis, and they account, in a measure, for the assertion of Dr. Saunders, that Foxglove excites the pulse. Its effects upon the pulse, however, vary much in individuals. Pereira considers that the reduction in frequency is more readily induced in weak, debilitated constitutions, than in robust and plethoric ones. Occasionally it produces no perceptible effect on the pulse, and, in rare cases, it renders it intermittent.

Among the occasional effects of Digitalis, is a profuse flow of saliva: of this, several instances are quoted by Dr. Wright.*

1089. *Remarks on the use of Digitalis*:—1. Digitalis, when given in small and long-continued doses, is apt to accumulate in the system, and suddenly to evidence its presence by poisonous and even fatal effects. Dr. Holland,† however, considers that its danger in this respect has been over-rated; an opinion in which he is joined by Dr. Pereira.‡ Dr. Garrod§ offers the following explanation of its cumulative character:—"that considerable weakening of the heart's action may occur without any very evident symptom being produced; but if this is increased above a certain point, so as to interfere with the efficiency of the circulation, then all the symptoms are rapidly and dangerously manifested."

2. It possesses a twofold action; the one sedative, and the other diuretic. These two actions are said never to occur simultaneously; if it acts as a sedative, it produces no diuresis, and *vice versâ*. Dr. Garrod,‖ however, asserts that Digitalis more especially produces diuresis when the deficiency of urinary secretion depends on cardiac disease.

3. To obtain its sedative effect, the Tincture should be administered alone; but if a diuretic effect be desired, the Infusion is preferable, particularly when combined with Squills and the Sesquicarbonate of Ammonia.

4. If either of these effects be obtained in a kindly manner, the patient may be considered safe from the poisonous operation of the drug. If, on the contrary, it does not evidence its usual effects in a few days, the medicine accumulates in the system, and the patient is in danger of experiencing its poisonous influence; it should, therefore, be discontinued. On this point, Dr. Munk¶ observes, "In no one instance have I seen a bad effect follow the use of Digitalis, where the first consequence of its exhibition was a removal or amelioration of prominent or distressing cardiac symptoms; whether this has been brought about by its operation as a sedative or as a diuretic."

5. It is chiefly applicable to diseases of an asthenic character, and in persons of shattered and debilitated constitutions.

6. Perfect rest of mind and body, and a recumbent posture, favour the development of its action. Patients should be strictly prohibited from taking any sudden or active exercise. The effect of posture on the pulse is noticed in the previous section.

7. In old persons, it is necessary carefully to watch the action of Digitalis. It has been observed by Schönlein to produce, in some instances, not only an alarming weakness, but a positive wasting and marasmus, probably by acting injuriously upon the nervous system and organs of digestion.

8. If vomiting or diarrhœa occur during the use of Digitalis, they should be checked, as either of them arrests the specific operation of the medicine.

9. It must be prescribed with caution in inflammatory or irritable states of the intestinal mucous membrane, and in plethoric states of the constitution.

Incompatible with the Infusion. The Salts of Iron and Lead; Tannin, and all vegetable solutions containing it.

* Pathology of the Saliva, Lancet, 1841-2.

† Medical Notes and Reflections, p. 544.

‡ Op. cit., vol. ii. part i. p. 530.

§ Essentials of Materia Medica and Therap., p. 264.

‖ Op. et loc. cit.

¶ Guy's Hospital Reports, Oct. 1844.

1090. *Therapeutic Uses. In Dropsy, Ascites, Anasarca, and Hydrothorax*, Digitalis has been in use since its first introduction by Withering,* in 1775. Experience has proved it to be a powerful and efficacious remedy, particularly when given in combination with Mercury, Squills, &c. Dr. Withering † observes, "that it seldom succeeds in persons of great natural strength, or plethoric habit, or in those with a tight and cordy pulse. If the belly in Ascites be tense, hard, and circumscribed, or the limbs in Anasarca solid and resisting, we have but little hope. On the contrary, if the pulse be feeble and intermitting, the countenance pale, the lips livid, the skin cold, the swollen belly soft and fluctuating, the anasarcous limbs pitting under pressure of the finger, we may expect the diuretic effects to follow in a kindly manner." Experience has fully proved the general justness of Withering's remarks; at the same time, it must be observed that Digitalis has failed more frequently than the eulogiums of Withering would lead us to expect. In order that it should prove effectual, it should be given in infusion, in combination with other remedies, particularly the Sesquicarbonate of Ammonia, or in the form advised by the late Dr. Baillie:—℞. Pil. Hydrarg. gr. v., Pulv. Scillæ gr. j., Pulv. Digitalis gr. ½, M. ft. pil. ter in die sumend. The rules given in the preceding section should be strictly observed. It is more serviceable in dropsy arising from disease of the heart, than in that arising from disease of the liver, or any other viscera. The Infusion should be freshly prepared daily, and given in doses of fl. oz. ss.—fl. oz. j. every six or eight hours.

In Dropsy after Fever, Dr. Darwell ‡ speaks highly of the efficacy of Digitalis; indeed, in the dropsy after Scarlet Fever, he considers it almost a specific. He observes that the coagulability of the urine, which may have resisted blood-letting and purgatives, rapidly disappears under the use of Digitalis; and effusion disappears at the same time. Occasionally the coagulability of the urine remains, after the employment of this remedy, and then tonics become necessary.

In Chronic Dropsical Affections, in Anasarca and Œdema, attended by debility, and occurring after Scarlet Fever, Dr. Holland § strongly advises a combination of Digitalis with T. Ferri Sesquichloridi. He considers that it would be difficult to find any single combination more effectual in these cases; and adds, that he has given it for weeks together without witnessing any ill effects. When, from any cause, the internal use of Digitalis is contra-indicated, it has been advised to rub the Tincture, combined with equal parts of soap liniment, over the abdomen, twice or thrice daily. Drs. Christien, Rouchy, and

* On the Med. Prop. of Digitalis, 1775.
† Op. cit., p. 189.
‡ Cyc. Pract. Med., vol. i. p. 164.
§ Med. Notes and Reflections, p. 546.

Bernard, have recorded cases apparently cured by this means alone.

1091. *In Hydrocephalus*, Digitalis has been found serviceable by Withering, Brown, Whytt, Cheyne, and Golis. The latter, without appearing to place much faith in its efficacy, advises gr. ¼ of the powdered leaves, with gr. ½ of Calomel, every second hour. He gave it, both in the inflammatory stage and in that of effusion; in the latter, chiefly as a palliative, to moderate the violence of the convulsions.* Kleber advises its external application, in combination with Squills, to the scalp. Dr. Merriman† relates a case successfully treated with Digitalis and Calomel, as advised by Golis. Its employment demands much circumspection.

1092. *In Inflammation*, Digitalis was formerly in high repute as an antiphlogistic; but experience has shown that, although it exercises a powerfully depressing action on the heart, it possesses little or no power in controlling inflammatory action. It is of more service in cardiac inflammation than in any other. Prof. Alison ‡ remarks, that the effect of Digitalis, in lowering the pulse, is seldom to be obtained without its nauseating effect, and this can hardly be produced within so short a time as the progress of an acute disease demands, without the danger of fatal syncope.

1093. *In Inflammation of the Brain and its membranes*, it was advised strongly by the physicians of the last century; but it is now rarely employed. "In no disease," observes Dr. Hope,§ "do the symptoms more require to be kept, as far as practicable, in a simple uncomplicated and intelligible state, and no remedy is so calculated to confuse them as Digitalis. The reduction of the pulse which it occasions cannot be discriminated with any degree of certainty, from that occasioned by the supervention of pressure in the second stage; again, Digitalis is apt to produce vertigo, faintness, and nausea; and how," asks Dr. Hope, "are these symptoms, artificially excited, to be distinguished from the same results of cerebral inflammation?" For these reasons, it is an objectionable remedy in this class of diseases.

1094. *In Diseases of the Heart*, Digitalis is a remedy of great value, but considerable difference of opinion exists as to the class of cases in which it is of most use. Dr. Munk,‖ for uniformity of action and to develop the full sedative action of the remedy, prefers the Tincture. He considers that it acts upon the heart in two ways: 1, by depressing the circulatory action; 2, as an antispasmodic. Where hypertrophy of the heart exists, whether

* See Cyc. Pract. Med., vol. ii. p. 471.

† Underwood on Dis. of Children, 9th Ed. p. 307.

‡ Outlines of Pathology, p. 243.

§ Lib. of Med., vol. ii. p. 58.

‖ Guy's Hosp. Reports, Oct. 1844.

complicated with other disease or not, Digitalis exercises a powerful and beneficial depressing action. Where there is an irritable state of the heart, attended with palpitations, irregularity, &c., it exercises its anti-spasmodic power. He advises the Tincture in doses of from ♏x. to xxx. every eight, ten, or twelve hours; and, when thus given, it seldom fails to produce a decided effect. He gives several valuable remarks on the use of Digitalis, from which many of the rules given in a preceding section have been drawn; and to which it is of great importance to attend, particularly in this class of diseases. It is far from being a remedy to be indiscriminately employed. Dr. Hope* considers that it is a dangerous remedy in organic disease of the heart attended with great debility of that organ, since it is apt to prove fatal, by creating polypus; and Dr. R. B. Todd† says, "I would lay it down as a general rule, that in all cases where there is regurgitative valvular disease, but especially aortic, Digitalis, given in doses sufficient to depress the heart's action, is a dangerous remedy; it weakens the heart, and thereby increases the embarrassment under which it already labours." M. Boillard‡ states that he has derived great advantage from the external employment of Digitalis in hypertrophy and other diseases of the heart. After applying a blister to the præcordial region, he covers the denuded surface with the powder of the leaves, in doses graduated from gr. vj.—xv. daily. "We thus," he adds, "diminish the number and force of the heart's beats, as if by enchantment." He styles Digitalis "the true opium of the heart." The testimony of other observers, however, as to the form of heart disease in which Digitalis is most valuable, is not in exact accordance with the above. Dr. Handfield Jones§ finds that it is especially useful in cases of *dilatation and enfeeblement of the heart.* He considers that in such cases it acts as a *cardiac tonic.* Dr. Sutton‖ also finds that in cases of *mitral regurgitation, with dilated hypertrophy* and enfeebled condition of the heart, Tinct. Digitalis with Tinct. Ferri Sesquichlor. is most valuable. It must be given with great caution in cases of *aortic regurgitant and obstructive disease;* in these conditions it generally fails to produce benefit. Dr. Corrigan is of opinion that in aortic disease its effects are injurious. Dr. Wilks¶ finds Digitalis useful in proportion to the weakness and irritability of the heart. Dr. Fuller** states that Digitalis is a most valuable remedy in *dilatation,* and is dangerous only in *hypertrophy.* He says, "Whenever the pulse is feeble and irregular, and more especially when, from any cause, its feebleness and irritability

* On Diseases of the Heart, p. 478.
† Med. Gaz., March 1851.
‡ Hope, op. cit., p. 290.
§ Med. Times and Gaz., Dec. 13, 1862.
‖ Ibid., Jan. 16, 1864.
¶ Ibid.
** On Diseases of the Chest.

are temporarily increased, Digitalis is of all known remedies the most useful."

1095. *In simple Hypertrophy of the Heart*, Dr. Hope* found the best effects follow the use of the T. of Digitalis, in doses of ɱxx.—xxx. twice or thrice daily. By others, however, it is considered to be contra-indicated in *simple hypertrophy*, and to be only useful in *hypertrophy with dilatation* (*ante*).

1096. *In Hypertrophy of the Valves of the Heart*, attended with much irritability and frequent pulsation, Dr. Hope† states that he has seldom seen the following formula fail in affording relief:—℞ Pil. Hydrarg. gr. iij., Pulv. Scillæ gr. j., Pulv. Digitalis gr. j.—iss.. ter in die sumend.; or it may be given once or twice a day, with the following draught:—℞ T. Scillæ ɱxx., Spt. Æther. Nit., Spt. Juniper. Co. āā fʒss.—fʒj., Decoct. Spartii fʒiss., M. ft. haust.

1097. *In Pericarditis*, after the acute symptoms have been subdued, sedatives are, in some instances, productive of benefit; but much caution is necessary in their use. Dr. Hope states that where there is great restlessness and nervous irritability, he has seen much benefit from the following formula:—℞ T. Digitalis, T. Hyoscyami āā ɱxv.—xx., Aquæ fʒiss., M. ft. haust. ter quarterve in die sumend.

1098. *In Aneurism*, according to Dr. Hope,‡ Digitalis is eminently useful, by enfeebling and retarding the action of the heart and arteries, and thus promoting the stagnation of blood within the sac. He advises the patient to be kept under the influence of the medicine for several consecutive weeks, when an interval of a week or two may be interposed, to obviate any cumulative effect.

1099. *In Arteritis*, Digitalis is a powerful auxiliary, assisting to control the morbidly increased action of the heart and arteries. It should not be used to the exclusion of depletion, calomel, and other antiphlogistic measures.

1100. *In Asthma connected with Disease of the Heart*, Dr. Hope§ speaks of the following draught as an excellent adjunct to other treatment:—℞ T. Digit. ɱxx.—fʒss., T. Opii vel Hyos. ɱvj.—x., Aq. Cinnam. fʒiss., M. Care should be taken to intermit the Digitalis, before its specific poisonous effects are produced.

1101. *In Spasmodic Asthma*, Digitalis is occasionally serviceable. Dr. Ferriar, in 1799, employed it extensively; and Dr. Sugrue,‖ of Cork, relates several instances, one of them a case of great severity, which were cured by the Tincture, in

* Op. cit., p. 288.
† Op. cit., p. 408.
‡ Op. cit., p. 478.
§ Cyc. Pract. Med., vol. i., art. Asthma.
‖ Med. and Phys. Journ., vol. iv. p. 329.

doses of ♏xv., twice daily. He found that, under its use, the most violent symptoms were mitigated, the expectoration diminished, and the general health visibly improved.

1102. *In Phthisis*, Digitalis was formerly held in high esteem. Dr. Beddoes* considered that "the majority of cases will yield to simple Foxglove;" and Dr. Mossman† stated that he could "arrest pulmonic inflammation with Digitalis, with as much certainty as he could an intermittent by means of Cinchona." Others were equally laudatory of its virtues, particularly in the first stage. Dr. Cowan,‡ however, observes, "It is now, very rationally, almost entirely rejected as a *cure* for consumption, and merits only to be regarded as one of the many means occasionally useful in this disease, and which may sometimes assist the operation of more important measures" Its chief effect is to diminish the frequency of the pulse. If given, it should be combined with iron.

1103. *In Hæmoptysis*, attended with high vascular action and much irritability of the system, Digitalis is occasionally of great service as a sedative; but it must only be regarded as an auxiliary to other treatment. Dose of the Tincture, ♏x.—xx. given every six, eight, or ten hours. In Hæmoptysis from tubercular disease it should be given combined with Tinct. Ferri Perchlor. *In Acute Epistaxis*, it has also been advised, but is inferior in efficacy to other remedies. In *Menorrhagia* and other forms of *Uterine Hæmorrhage* unconnected with organic disease, Digitalis appears to exercise a remarkable and decided sedative action. The evidences of its power adduced by Mr. W. H. Dickinson§ are incontestable. He employed it in the form of infusion. When given in large doses (f℥j.—f℥iss.), the discharge never appeared after the second day; when smaller ones were used, it never appeared after the fourth day. Its *modus operandi* appears doubtful: the effect is evidently not due solely to its sedative qualities. It deserves further trial.

1104. *Chronic Bronchitis and Coughs*, attended with much dyspnœa and violent palpitations, are greatly relieved by the use of the Tincture, in doses of ♏xv.—xx., every four or six hours, or by a combination of Digitalis, Squills, and Mercury.

1105. *In Insanity and Mania*, Digitalis is advised by Drs. Currie,‖ Ferriar, Darwin, Uwins, Burrows, Ellis, Cox, Hallaran, and others; and in some cases it proves serviceable. In Germany it is regarded almost as a specific in Mania. M. Foville limits its use to those cases where the disease of the brain is dependent upon

* Obs. on the Management of the Consumptive, 1801.

† Essay on Scrofula and Glandular Consumption.

‡ Trans. of Louis, p. 275.

§ Med. Times and Gaz., Dec. 15, 1855.

‖ Mem. of Med. Society of London, vol. iv. art. 2.

disease of the heart, and particularly where there is increased fulness and pulsation of the carotid and temporal arteries. Dr. Mayo,* an advocate for its use, advises the following formula:—℞ T. Digitalis ♏xv., Pot. Nit. ℈j., Mist. Camph. f℥x., ft. haust. ter in die sumend. Dr. Prichard† regards it as inferior to Antimony, which he says will answer all the purposes for which Digitalis has been adopted, is more speedy in its effects, and much more manageable. (See ANT. TART.) The efficacy of Digitalis in very large doses in *Delirium Tremens* has been proved by numerous cases in the practice of Dr. Jones, of Jersey,‡ Dr. Peacock,§ Dr. M. Mackenzie,‖ and others. Dr. Peacock draws the following conclusions:—1. That Digitalis, when exhibited in full doses, does not by any means produce the amount of depression which our previous experience of its action in small doses would lead us to expect; and, 2. That the remedy, in conjunction with other means, may probably be very usefully employed in certain cases of the disease, and especially when it occurs in young and robust persons whose strength has not been broken down by prolonged habits of intemperance. Dr. Laycock,¶ on the other hand, regards the evidence in favour of the calming effect of Digitalis in this disease as of the vaguest kind, and states that there is no indication of the class of cases in which it may be safely prescribed. Mr. J. W. Robinson** recommends that Digitalis be given in combination with Opium.

1106. *In Epilepsy and Epileptic Mania*, Digitalis, in large doses, has been recommended by Drs. Withering, Currie, Mills, Semoine, W. Scott, and others. Dr. Sharkey†† relates several cases in which he administered from f℥ij. to f℥ss. of the Tincture of Digitalis in a single dose, and in the majority it was productive of decided benefit. There appears to be a peculiar tolerance of Digitalis in these affections; but its use in the above-named doses can hardly be regarded as safe or admissible in the majority of cases. In smaller doses it may prove useful, when the affection is connected with cardiac derangement. It failed in the hands of Dr. Percival.‡‡ Dr. J. Osborne§§ considers the efficacy of Digitalis in Epilepsy greatly increased by union with Tincture of Cantharides.

1107. *In Croup*, Digitalis was formerly held in high esteem, though now rarely employed. Amongst others, Mr. Custance‖‖

* On Insanity, p. 117.
† Lib. of Med., vol. ii. p. 134.
‡ Med. Times and Gaz., Sept. 29, 1860.
§ Ibid., August 3, 1861.
‖ Lancet, March 1, 1862.
¶ Edin. Med. Journ., Nov. 1862.
** Lancet, Oct. 17, 1863.
†† On the Efficacy of Digitalis in Epilepsy, Lond. 1841.
‡‡ Edin. Med. and Surg. Journ., vol. ix. p. 271.
§§ Dub. Quart. Journ. of Med., Nov. 1855.
‖‖ Med. and Phys. Journ., vol. iv.

relates three cases which completely recovered under the use of the Tincture in doses of ♏vj. every six hours.

1108. *In Ear-Ache*, Dr. Lehman,* after the exhibition of a mild purgative, advises, as an effectual remedy, the introduction into the meatus of a piece of cotton saturated with the Tincture of Digitalis.

DIOSMA CRENATA. See BUCCO.

1109. DIPTEROCARPUS TURBINATUS seu D. LÆVIS. Gurjun or Wood-Oil Tree. *Nat. Ord.* Dipterocarpeæ. *Hab.* Chittagong, Pegu, the Tenasserim Provinces, &c.

Med. Prop. and Action. The Gurjun Balsam is obtained by incisions in the bark of the tree, and is found abundantly in all the bazaars in India. By distillation it yields an essential oil, which, in all its medicinal properties and action, closely resembles Copaiba. It is best given in the form of compound tincture (Beng. Ph.):—℞ Essential Oil of Gurjun f ʒj., Essential Oil of Cubebs f ʒj., Spirit of Nitric Ether f ℥j.; dissolve.

Dose of Compound Tincture ♏xx.—♏xxx., in milk, thrice daily; of the Essential Oil ♏v.—♏xv. thrice daily.

1110. *Therapeutic Uses. In Gonorrhœa and Gleet*, Sir W. O'Shaughnessy† employed it in numerous cases, and the results seem perfectly conclusive, that in the treatment of these and other affections of the genito-urinary system, the Essential Oil of Gurjun is nearly equal in efficacy to Copaiba. It generally causes a sensation of warmth in the epigastrium, eructations, and sometimes slight purging. It greatly increases the quantity of urine, which has a terebinthinate odour. He found that some obstinate cases of chronic gonorrhœa and gleet, which had long resisted Copaiba and Cubebs, were cured by this remedy. In the few cases in which I have had an opportunity of trying it, the results have been uniformly satisfactory. It might be advantageously introduced into English practice, as a cheap and efficient substitute for Copaiba.

DOLICHOS PRURIENS. See MUCUNA PRURIENS.

1111. DRIMYS WINTERI. (Wintera Aromatica.) The tree yielding Winter's Bark. *Nat. Ord.* Magnoliaceæ. *Linn. Syst.* Polyandria Tetragynia. *Hab.* The Straits of Magellan.

Med. Prop. and Action. Aromatic, bitter, and tonic. From the presence of Tannin it is rendered somewhat astringent, and its stimulant quality resides in a volatile oil.

Dose, gr. x.—gr. xx. in powder or infusion.

1112. *Therapeutic Uses.* It was formerly much employed in *Dyspepsia* (in which it may doubtless prove serviceable), *in*

* Amer. Journ. of Med. Science, vol. v. p. 34.

† Bengal Dispensatory, p. 223.

Scurvy, in Intermittent Fevers, and in Nervous Affections. It is now rarely used, excepting as an adjunct to other tonics, or as a substitute for Canella.

DULCAMARA. See SOLANUM DULCAMARA.

1113. DUTCH OIL. Dutch Liquid. The Chloride of Olefiant Gas of Fownes. The Chloride of Acetyle, or Oil of Olefiant Gas of Turner. Dutch Oil, or the Oil of the Dutch Chemists, of former writers. C_2H_2Cl. Sp. Gr., of the liquid, 1·247; of the vapour, 3·448.

Med. Prop. and Action. A powerful anæsthetic agent, first introduced by Mr. Nunneley,* of Leeds, who states that, in the cases in which he employed it, the results were most satisfactory. Drs. Simpson and Snow regard it as inferior to Chloroform for the purposes of inhalation, as it gives rise to too much irritation. As a local anæsthetic, it is particularly recommended by Dr. Aran,† who states that it causes less pain and irritation of the skin than any other remedy of the same class. To obtain local anæsthesia by it, from 15 to 30 drops are applied to the painful part, and the whole covered with a wet compress, and a piece of waxed cloth, or oiled silk. (See ANÆSTHETICS.)

Therapeutic Uses, the same as those of Chloroform (which see).

1114. ELATERIUM. The sediment from the expressed juice of the fruit of Ecbalium Officinarum. Squirting Cucumber. *Nat. Ord.* Cucurbitaceæ. *Linn. Syst.* Monœcia Syngenesia. It is sometimes improperly styled an Extract, a misnomer which may lead to serious mistakes. *Source*, South of Europe, and other parts.

Med. Prop. and Action. Hydragogue cathartic. The best mode of administering it, is in divided doses of gr. ½ every four hours, until it begins to operate. It often occasions severe griping, vomiting, or hypercatharsis, but this may be partially obviated by combining it with a small portion of powdered Capsicum or Ginger. It gives rise to considerable dryness of the mouth and fauces, a desire for drinks, and, after its operation, to a great feeling of depression and debility, which soon passes off. The stools produced by Elaterium resemble water in which meat has been partially boiled. It is only suited for dropsical or cerebral affections, where a powerful revulsive action is desired; in cases of ordinary constipation it should never be employed. It contains an active crystalline principle, *Elaterine* or *Momordicine* ($C_{20}H_{14}O_5$), which forms from 20 to 30 per cent. of good Elaterium. This may be given in doses of gr. $\frac{1}{24}$—gr. $\frac{1}{8}$. Both Elaterium and its active principle are irritant poisons, in large doses, causing gastro-intestinal inflammation. "Good Elaterium is of a pale, greenish colour, has a bitter taste, is light and pulverulent." (A. T. Thompson.) It becomes grey on exposure to light.

Dose of good Elaterium, gr. $\frac{1}{12}$—gr. ½. If impure or deteriorated by long keeping, gr. ½—gr. j.

1115. *Therapeutic Uses. Dropsical Affections. In Dropsy, Anasarca, and Œdema, arising in connection with Disease of the Heart*, Elaterium is one of the most efficacious remedies we pos-

* Prov. Journ., March 4, 1849.

† Lond. Journ. of Med., March 1851.

sess. Dr. Hope* observes that its effects are sometimes truly astonishing; and that he has seen an extreme, universal anasarca removed by it in three or four days. The remedy, however, is apt to be exeessively violent in its operation, and it should therefore be given to strong subjeets alone; in the weak and the aged, its effeets should be carefully watched. As its effect varies in different individuals, it should be tried first in small doses, as from $\frac{1}{8}$ to $\frac{1}{4}$ of a grain. With eaution, this may be carried to two grains. Dr. Hope gives it, in the form of pill, with Pulv. Capsici, to eounteraet the griping, and with a grain of Calomel to prevent its emetie effeets. A single pill should produee six or eight watery evaeuations, and he advises that it should be repeated two or three mornings in succession, or every seeond or third morning, aeeording to the strength of the patient. Dr. Darwell,† whose estimate of Elaterium is very high, directs two grains to be eombined with ʒj. of Ext. Gentian., and divided into four pills, of which one is to be taken every hour, till it cause free evaeuations. In order to be of much serviee, he adds, this should be repeated every two or three days for a fortnight; after which, it may be suspended for a short time. An eligible formula is proposed by Dr. Kilgour:‡—℞. Elaterii gr. j., Ext. Coloe. Co. ʒij., Ext. Hyoseyam. gr. xij., M. ft. pil. xij. sumat. j. noete maneque. In Ascites, however, observes Dr. Ballard,§ it often fails, until the tension of the abdomen has been relieved by tapping; but as soon as the patient has reeovered from the first effects of the operation, Elaterium should be resorted to as the most probable means of preventing the re-aeeumulation of the fluid. Its use is no bar to the simultaneous administration of tonics and iron. It is a most valuable remedy in *Renal Dropsy*.

1116. *In Cerebral Affections*, Elaterium, as a powerful cathartic, oeeasionally proves highly servieeable, not only in removing the obstinate eonstipation so frequently attendant on these affections, but as a revulsive and derivative. It is, however, less applicable in the majority of eases than Croton Oil, or the stronger saline purgatives. It should be avoided in the aged, or in those mueh debilitated. *In Hydrocephalus*, it is advised by Dr. Elliotson as the most effieient purgative.

1117. Elemi. A conerete resinous exudation from an undetermined plant, probably Canarium Commune. *Nat. Ord.* Terebinthaceæ. There is, however, mueh doubt as to the tree from which this Resin is obtained. *Source*, chiefly imported from Manilla.

Med. Prop. and Therapeutic Uses. Stimulant, only used externally in the

* On Diseases of the Heart, p. 409.
† Cyc. Pract. Med., vol. i. p. 179.
‡ Edin. Month. Journ., Sept. 1850.
§ Mat. Med., p. 251.

form of ointment. *To indolent and ill-conditioned Ulcers* this forms a good stimulant application; but it has no advantage over less expensive articles of the same class. The ointment is also used to promote suppuration from setons and issues.

Offic. Prep. Unguentum Elemi (Elemi oz. ½; Simple Ointment oz. j.).

1118. EMETINA. Emetia. Emetine. ($C_{35}H_{25}NO_9$?) A feeble alkaloid. The active principle of Ipecacuanha. It occurs in two forms: 1, *Pure*, which is perfectly white; and 2, *Impure*, which occurs in reddish brown, transparent, inodorous scales. The former is about four times as strong as the latter. Three grains of impure, and one grain of pure Emetine, are equal to about gr. xviij. of Ipecacuanha.

Med. Prop. and Action. Emetic and purgative. It exerts a specific action on the lungs and mucous membrane of the intestines, and has also narcotic properties. Stupor and death have resulted from large doses. Its operation is stated to be more certain, and more easily regulated, than that of Ipecacuanha. Externally, it may be used in the form of ointment.

Dose, as an emetic and purgative, gr. ½; as an alterative, gr. $\frac{1}{16}$.

Therapeutic Uses, the same as those of Ipecacuanha.

ERGOTA. See SECALE CORNUTUM.

1119. ETHER. Æther. Æther Sulphuricus. Sulphuric Ether (Pharm. Ed. Dub.). Oxide of Ethyl (C_4H_5O), with about 8 per cent. by volume of Alcohol. Prepared by distilling Rectified Spirit with Sulphuric Acid. Sp. Gr. 0·735.

Med. Prop. and Action. Diffusible stimulant, and anti-spasmodic. The vapour is powerfully anæsthetic. The application of its anæsthetic properties to surgery was first made in 1846 by Dr. Morton, of Boston (U. S.), and to him is due the honour of having introduced the practice of anæsthesia during surgical operations,—the greatest improvement in modern surgery. Mr. Robinson, the dentist, in London, was the first person who employed anæsthesia in England in any surgical operation; he extracted a tooth, the patient remaining during the whole time in a state of unconsciousness. It was readily adopted in many severe operations, and the journals of the day swarmed with details of "painless operations." Other substances were then tried in the same manner, inhalation; and Chloroform was discovered by Prof. Simpson, of Edinburgh, and was found to present manifold advantages over Ether. From the power which Ether possesses of dissolving Cholesterine, as well as on account of its antispasmodic properties, it has been lately recommended as an internal remedy in *Jaundice* depending on *Biliary Calculi*. As a remedy for *Deafness*, it has been proposed to introduce gutt. iv.—viij. of Ether into the meatus daily, but the results of this treatment in the hands of Dr. Triquet proved the futility of the practice.* In some instances it affords temporary relief, by acting as a solvent of accumulated cerumen in the meatus. Applied externally, it evaporates rapidly, producing great cold. If the vapour be confined, it acts as a rubefacient.

Offic. Prep. Spiritus Ætheris (see art. Ætheris Spiritus).

Dose of Ether, ℥xx.—℥xl.

For remarks on its Use, Cautions, Contra-indications, and Therapeutic Uses, see CHLOROFORM and ANÆSTHETICS.

* See Ranking's Abstract, xxxii. p. 23, 1860.

1120. Ætheris vel Etheris Nitrosi Spiritus. Spirit of Nitrous Ether. Sweet Spirit of Nitre. Spiritus Etheris Nitrici (Ph. Lond. Edin.). The product of the distillation of a mixture of Rectified Spirit and Sulphuric Acid, with Nitrite of Soda. Sp. Gr. 0·843. It consists of Nitrite of Ethyl (Nitrous Ether), C_4H_5O,NO_3, dissolved in Rectified Spirit.

Med. Prop. and Action. Refrigerant, diuretic, and diaphoretic. It is chiefly used as an adjunct to other remedies of the same class. To obtain its diaphoretic and refrigerant effects, it is best combined with Liquor Ammoniæ Acetatis; to obtain its diuretic action, with Squills, &c.

Dose, ℥xxx.—fl. drs. ij.

1121. *Therapeutic Uses. In mild Febrile Affections, Catarrhs, Coryza, and Influenza, to relieve nausea and flatulence*, and in some forms of *Dysuria*, the Sweet Spirit of Nitre, in doses of fl. drm. j.—fl. drs. iss. in a cupful of any convenient vehicle, is a popular and efficacious remedy. *In Dropsy*, it is a valuable adjunct to other diuretics, particularly to the Acetate of Potash, Squills, and Digitalis. Dr. Copland* speaks favourably of it when given uncombined.

1122. Ætheris Spiritus. Spirit of Ether. (Ph. Brit.) Etheris Sulphurici Spiritus. Spirit of Sulphuric Ether. (Ph. Ed.) A combination of Sulphuric Ether fl. oz. x., and Rectified Spirit fl. oz. xx. Sp. Gr. ·809.

Ætheris Spiritus Compositus. Compound Spirit of Ether. (Ph. Lond. 1851.) Etheris Sulphurici Comp. Spiritus. The compound Spirit of Sulphuric Ether. (Ph. Lond. 1836.) A combination of Ether f℥viij., Rectified Spirit f℥xvj., Etherial Oil f℥iij. Hoffman's Mineral Anodyne Liquor.

Med. Prop. and Action. Diffusible, stimulant, and anti-spasmodic. They are best given in combination with other remedies.

Offic. Prep. of Spirit of Ether. Tinctura Lobeliæ Ætherea (see Lobelia Inflata).

Dose of Spirit of Ether, ℥xxx.—fl. drs. iss.; of the Compound Spirit, ℥xxx.—fl. drs. iss.

1123. *Therapeutic Uses. In Spasmodic Asthma*, the combination of Ether with Opium or Henbane, given during the paroxysm and repeated according to the severity of the symptoms, is a very valuable palliative. In most cases it proves serviceable, but occasionally it appears to aggravate the attack.

1124. *In Spasmodic Affections of the Bowels, flatulence*, and *flatulent Colic*, it may be administered with the best effects. It is particularly serviceable when these occur in hysterical females.

* Dict. Pract. Med., vol. i. p. 625.

1125. *In Cholera*, it has been extensively employed as a stimulant in the stage of collapse. In some cases, it seems to have roused the sinking vital powers. It requires to be given in large doses, with other stimulants.

1126. *In Typhus and other low Fevers*, it is often productive of excellent effects. It is particularly useful when nausea, subsultus tendinum, and other spasmodic symptoms, are present. (Thompson.)

1127. *In Ear-Ache*, exposing the ear to the fumes of Spt. Æther. is often attended with great relief. It may be effected, by mixing equal parts of the Spirit and hot water in a phial, and applying its aperture to the external ear. Dr. A. T. Thompson says that he has seen it effectual, when dropped into the external meatus.

1128. *Hiccough* is often immediately arrested by ɱxx.—ɱxxx. of Spt. Æther. in drs. x. of some aromatic water.

1129. *In irreducible Hernia*, it has been applied externally to the hernial sac, as an evaporating lotion. The degree of cold which it induces has occasionally a good effect, the hernia returning immediately after its application. It frequently fails; anæsthesia by Ether is far more successful. (See Chloroform.)

Ethiops Mineral. See Hydrargyri Sulphuretum cum Sulphure.

1130. Eupatorium Perfoliatum. Bone Set. *Nat. Ord.* Synantheræ. *Hab.* United States.

Med. Prop. and Action. Stimulant, diuretic, and sudorific. In doses of gr. xv. mildly purgative; in larger doses, emetic.

1131. *Therapeutic Uses. In the Influenza* which was epidemic in the United States in 1844, Bone Set was used extensively, and, it is stated, with the best effects. Dr. Peebles,* who bears testimony to its efficacy, advises an infusion (dried leaves ʒj., Boiling Water Oj.) in doses of a wine-glassful, to be drunk warm, every half-hour; the patient remaining in bed the whole time. The fourth or fifth dose produced profuse perspiration, sometimes vomiting: this was followed by immediate relief. It was subsequently given only every three or four hours.

1132. Euphorbium. The Gum-Resin of Euphorbia Officinarum, E. Canariensis, and probably of other species of Euphorbia. *Nat. Ord.* Euphorbiacæ. *Linn. Syst.* Monœcia Monadelphia. *Source*, Western Africa and the Canary Islands.

Med. Prop. and Action. Drastic purgative. The dose is variously stated

* Amer. Journ. of Med. Sciences, April 1844.

Ettmüller advises gr. xx., Schroeder from gr. v.—x., Geoffroy gr. viij., and Dr. Vietch, who quotes these authorities, does not consider that the dose should exceed gr. vj. Dr. Vietch,* from numerous experiments, comes to the conclusion, that it is of little value as a purgative, as it sometimes causes great irritation of the stomach and bowels, and its operation is extremely uncertain. Externally applied, it is a powerful irritant, causing a papular, and, in some instances, a pustular eruption. Dr. Vietch strongly advises its being substituted for savine ointment, in dressing blisters and issues. The strength he advises is gr. xx.—xxv. of the powder to 3j. of Lard. He states that he has used it for three years without witnessing any ill effects from it in a single instance. It may prove a valuable resource in tropical countries, where Savine soon spoils, and Euphorbium is abundant. Caution is required in reducing Euphorbium to powder, as the smallest particles of dust introduced into the eyes or mouth would cause violent inflammation.

Therapeutic Uses. It was formerly held in high esteem in diseases of the nervous system, &c., but is now never administered internally.

1133. EUPHORBIA IPECACUANHA. Ipecacuanha Spurge. A native of the United States.

Med. Prop. and Action. Dr. Bigelow† states that, from his trials with the dried root, he is led to the conclusion that, in doses of gr. x.—xx. it is both emetic and cathartic, that it is more active than Ipecacuanha in similar doses, and that, in small quantities, it generally acts with as much ease as most emetics. If it fail at first, it is not so safely repeated as many of the emetics in common use. If accumulated in the stomach to the amount of gr. xl.—gr. lx., it finally excites violent and long-continued vomiting, attended with a sense of heat, vertigo, indistinct vision, and great prostration of strength. From gr. x.—xx. constitute an emetic to be given at once; if this quantity fail to produce vomiting, it generally purges. Its action may be quickened by a little Tartar Emetic, but it ought not to be repeated to the amount of more than 25 or 30 grains. The recent juice is powerfully irritant.

Therapeutic Uses. The same as Ipecacuanha.

1134. FARINA. Flour. The flour of the seed ground and sifted of Triticum Vulgare, Common Wheat. It contains Starch 71·49, Gluten 10·96, Sugar 4·72, Gum 3·32, Water 10, in 100 parts; but these quantities vary in almost every sample. It forms the most important article of food, when converted into bread. Wheat is the most nutritious of all grains of the same kind, containing a larger proportion of proteine matters than any other grain.

Med. Prop. and Therapeutic Uses. 1. in the form of fine powder, it is dusted over *Erysipelatous surfaces,* to which it is generally a very cooling and pleasant application. 2. *To burns and scalds* it is applied in like manner. It should be put on sufficiently thick to exclude the air; it thus effectually protects the parts, and absorbs the discharge. The crust which forms may be removed by emollient poultices. 3. *In poisoning by the Preparations of Mercury, Iodine, Silver, and Zinc,* flour, mixed with water, is employed as a chemical antidote. 4. It is an ingredient in mustard, linseed, and other poultices.

Offic. Prep. Cataplasma Ferventi (see Cerevisiæ Fermentum).

FEL BOVINUM PURIFICATUM. See Ox Bile.

* Edin. Med. and Surg. Journ., vol. lviii. p. 483.

† Amer. Med. Bot., iii. p. 108.

1135. **Ferrum.** Iron. A metal which, in its metallic state, is probably inert, or only acts mechanically; but it readily oxidizes in the alimentary canal, and thereby acquires medicinal power. It is one of the few metals which, by oxidizement, is not rendered more or less poisonous. (Pereira.) Its chief medicinal use is as the basis of the following preparations.

1136. *The Modus Operandi of the Salts of Iron* is almost entirely through and upon the blood, which it improves by increasing the quantity, and improving the quality of the blood-corpuscles. Andral details a case of Chlorosis, in which the blood was examined, and the proportion of globules was only 49. Iron was administered for some time, and the proportion rose to 64. In another case, the proportion, under the use of Iron, rose from 46 to 95. Simon* also gives the case of a Chlorotic girl, in whom the blood contained Globulin 30·860, and Hæmatin 1·431. Iron was administered for seven weeks: at the end of that period, the blood contained Globulin 90·810, Hæmatin 4·598. He observes that the changes in the condition of the patient kept pace with that of the blood. She was before pale, her lips and cheeks were colourless, but now she presented a really blooming appearance. Pereira has given the name *hæmatinic* to the preparations of iron, on account of the property they possess of augmenting the amount of hæmatin in the blood. To this property of enriching the blood may be ascribed its efficacy *in preventing the development of tubercular disease*. M. Coster's observations on this point are highly interesting. He placed a number of dogs, rabbits, &c., in the circumstances generally supposed to be the most favourable to the development of scrofula and tubercular disease; namely, cold damp cellars, without light; they were prevented from moving, and exposed to a most unwholesome atmosphere. Some of the animals were fed upon ordinary food; others upon bread, containing half an ounce of the Sesquioxide of Iron in each lb. of bread. The former, with one or two exceptions, became tuberculous; whilst not one fed upon the ferruginous bread presented even a trace of tubercles.†

When taken internally, the Salts of Iron are absorbed into the system, and have been detected in the blood, the urine, and the milk; a portion of them passes off by the bowels, as is evidenced by the black fæces which are always observed after a few doses of any of the stronger Salts of Iron. Under their use, the digestion is improved, the appetite becomes greater, the pulse increases in frequency and fulness, and the general health improves: the patient at the same time gains flesh and colour. These effects are often very marked. From some recent observations by Dr. Pokrowsky,‡ made in the Hospital at St. Petershurg, it appears that under the use of Iron, the temperature of the body, whether previously normal or morbidly depressed, rises, and the daily amount of urea excreted in the urine is increased. The weight of the body also is augmented. These effects were produced alike by all the preparations of Iron. In some persons, the Salts of Iron cause great gastric irritation. In excessive doses, they are irritant poisons.

1137. *Remarks on the Use of the Salts of Iron.* 1. In excessive anæmia, whether from hæmorrhage or any other cause, the stronger Salts of Iron, the Sulphate or Perchloride, are chiefly indicated. In ordinary debility, the milder salts, the Ammonio-Citrate, or the Potassio-Tartrate, are to be preferred. In scrofulous subjects the Iodide is an eligible form.

2. Any gastric irritation which arises from their use, may be obviated by the addition of Ext. Hyoscyami, or Conium. If one salt should disagree, a milder one may be substituted.

3. Acids, and acidulous fruits, should be avoided during their use, as, by

* Animal Chemistry, trans. by Dr. Day, vol. i. p. 310.

† Bull. de l'Acad. de Méd., Jan. 31, 1840.

‡ Year-Book, Sydenham Soc., 1862, p. 115.

combining with them in the stomach, other compounds may be formed, which may either give rise to irritation, or render the remedy less active.

4. The fæces, under the use of this medicine, are black and offensive; this should be remembered, otherwise it might lead to the supposition that the biliary action was greatly vitiated. On discontinuing the medicine, the stools resume their natural colour. The tongue also, if Iron has been taken in solution, becomes black.

5. During a prolonged course of Iron, the medicine should be intermitted for a short time, every ten or fifteen days, in order to ascertain the real state of the alvine secretions.

6. Purgatives greatly increase the efficacy of the Salts of Iron. Besides correcting the costiveness, which it is the tendency of ferruginous salts to induce, they act by removing the serosity of the blood in "watery stools;" and thus, the proportion of serosity, and that of the organic elements, including the Hæmatin, in the blood, are rendered more equal.

7. In anæmic states, the Salts of Iron are productive of the best effects, up to a certain point; that is, until the blood contains its normal amount of Iron; if continued beyond this point, the blood, becoming surcharged with Hæmatin and Globulin, a state of plethora is induced, and indigestion and general derangement results, as a natural consequence.

8. In order to judge fairly of the effects of Iron, it requires to be persevered in for several weeks, and to be given in full doses.

Iron is contra-indicated—1, in all inflammatory affections; 2, in congestions; 3, in plethora, or plethoric states of the system; 4, in the sanguine temperament generally.

Iron-wire sutures, as a radical cure for *Hydrocele*, have been proposed by Prof. Simpson.* The practice is founded upon the fact that Iron and other metallic wires, when placed in contact with living tissues, do not as a general law excite inflammation to a higher stage than that of adhesion or the effusion of coagulable lymph. Two cases successfully treated by this means are recorded by Dr. J. Young.† The number of fine metallic wires, or setons, passed through the sac, was four in one instance, and five in the other. Sutures of iron-wire have also of late years been much employed in various surgical operations.

1138. FERRUM REDACTUM. Reduced Iron. Ferri Pulvis. Powder of Iron. (Ph. Dub.) Fer Reduit. Metallic Iron with a variable amount of Magnetic Oxide of Iron. Prepared by reducing Peroxide of Iron to the metallic state, by heating it in a gun-barrel in a furnace, and passing through it dry hydrogen gas.

Med. Prop. and Action. A powerful hæmatinic and tonic. It possesses the blood-restoring powers of Iron, without any astringent property (Garrod‡). It usually sets easily on the stomach, but sometimes gives rise to disagreeable eructations of hydrogen or sulphuretted hydrogen gas. It does not possess the inky taste of other ferruginous preparations,—a circumstance which enhances its value as a medicine for children. Like other preparations of iron, it blackens the stools. It may be given in the form of pill or powder, or in lozenges or *bon-bons* made with chocolate.§ It is taken advantageously with a meal.

Dose, gr. ij.—gr. vj.

Therapeutic Uses. *In Anæmia, Chlorosis*, and *Amenorrhœa*, it exerts the same beneficial influence as other ferruginous prepara-

* Edin. Med. Journ., Dec. 1858.

† Med. Times and Gaz., Feb. 26, 1859.

‡ Essentials of Materia Med. and Therap., p. 70.

§ Draper, Manual of the Med. Prep. of Iron, p. 6.

tions. It has been given with advantage in *Chorea*. M. Coste* states that he has used it with good effect in cases of *Enlarged Spleen following Ague*, in doses of gr. $\frac{3}{4}$ to gr. iiss.

1139. FERRI ACETAS. Acetate of Iron. Acetate of the Peroxide of Iron (Fe_2O_3, 3 $\bar{A}$). Eq. Wt. 233.

Med. Prop. and Action. The Acetate of Iron is used in the form of Tincture (Tinct. Ferri Acetatis, Ph. Dub.). This possesses the usual medicinal properties of a ferruginous compound. It is a very agreeable, mild chalybeate. An Ethereal Tincture of the Acetate has been recommended by Dr. Waters† in the treatment of *Pulmonary Emphysema* of the degenerative form, especially when complicated with bronchitis. From its stimulating properties, it acts as an expectorant. He gives it in acute attacks of *Bronchitis complicating Emphysema*, as soon as the urgent symptoms are ameliorated, and whilst the secretion from the bronchial tubes is still profuse.

Dose of the Tincture, ℥x.—℥xl.; of the Ethereal Tincture, ℥x.—℥xx every four or six hours.

1140. FERRI ET ALUMINÆ BISULPHAS. Bisulphate of Iron and Alumina. *Prep.* When ten parts of well-washed Alumina, three of soft Iron filings, and five of Carbonate of Soda or Potash, are compressed for a considerable time in distilled water, a clear carbonated solution is obtained. This is treated with Sulphuric Acid in excess, and a Bisulphate results, in the crystals of which the Iron is permanently secure from rusting or peroxidizing in the air. When given internally it does not irritate, and when used externally it neither rusts nor stains the linen.

Dose, gr. v.—x. in Aromatic Water.

1141. *Therapeutic Uses.* Sir J. Murray,‡ who introduced this preparation, enumerates the following diseases in which he found it eminently successful:—1, *Relaxation and a vitiated state of the Alimentary Canal;* 2, *Chronic Diarrhœa, and Dysentery;* 3, *Cholera;* 4, *Chlorosis, and all debilitating Mucous discharges;* 5, *Pyrosis;* 6, *Spasms of the Stomach;* as a gargle in *Sore Throat and in Salivation;* as a stimulating lotion *to foul and flabby Ulcers;* as a collyrium in *Ophthalmia;* and as a styptic *in Hæmorrhage from the Nose, Leech-bites, &c.*

1142. FERRI AMMONIO-CHLORIDUM. Ammonio-Chloride of Iron. Ammoniated Iron. A compound of Perchloride of Iron 15, Hydrochlorate of Ammonia 85, in 100 parts.

Med. Prop. and Action. Tonic and alterative. On account of the small and variable quantity of Iron which it contains, it is rarely employed. In large doses, it is aperient. A tincture of the Ammonio-Chloride of Iron is contained in the Pharm. Lond. 1851.

Dose of the Salt, gr. iv.—gr. xij.; of the Tincture, ℥x.—fl. drm. ss.

* Journal de Méd. de Bordeaux, Mai 1853.

† On Emphysema of the Lungs, pp. 90-98.

‡ Dublin Medical Press, March 14, 1849.

Therapeutic Uses. The same as those of the Ammonio-Citrate, to which it is very inferior. *In Intermittents*, it was successfully employed by Huxham* and others. *In Cancer*, it is favourably spoken of by Dr. Denman.†

1143. FERRI ET AMMONIÆ CITRAS. Citrate of Iron and Ammonia. Ammonio-Citrate of Iron. A compound of Ammonia, Peroxide of Iron, Citric Acid, and Water. Probable Formula (Fe_2O_3, NH_4O, HO, $C_{12}H_5O_{11}$ + 2 HO).

Med. Prop. and Action. A mild and valuable tonic and blood-restorer, in doses of gr. v.—x., in solution. It is particularly adapted for children, and for those cases where the stomach is too irritable to bear the more powerful salts, as it is devoid of any unpleasant taste, possesses scarcely any astringency, and its properties are extremely mild and unirritating. It is the most preferable of all the mild salts of Iron.

1144. *Therapeutic Uses. In Debility after exhausting Diseases, and in the Anæmic states of Children*, the Ammonio-Citrate of Iron is a valuable and efficacious remedy. It is particularly indicated when the stomach is irritable, when it may be advantageously combined with Infus. Calumbæ.

1145. *In Scrofulous Affections of Children, Tabes Mesenterica, &c.*, the Ammonio-Citrate is eminently serviceable. Its mild taste, which may be further disguised by Syrup, is no small recommendation for its use for children; and striking benefit often results from it, especially in mesenteric disease. To a child of three years old, gr. ij. may be given, twice or thrice daily.

1146. *In Dyspepsia occurring in Scrofulous subjects*, it is often productive of the best effects.

1147. FERRI AMMONIO-SULPHAS. Ammonio-Sulphate of Iron. Ammonia Iron-Alum. A compound of Persulphate of Iron and Sulphate of Ammonia. (Fe_2O_3, 3 SO_3 + NH_4O, SO^3 + 24 HO.)

Med. Prop. and Action. Astringent and tonic. (See FERRI POTASSIO-SULPHAS.)

Dose, gr. iij.—gr. vj.

1148. FERRI AMMONIO-TARTRAS. Ammonio-Tartrate of Iron. A Tartrate of the Peroxide of Iron and Ammonia. (Fe_2O_3, NH_4O, $C_8H_4O_{10}$ + HO) ?

Med. Prop. and Action. Mild, unirritating tonic. It is an excellent substitute for the Citrate of Iron and Ammonia.

Dose, gr. iij.—viij. in solution or pills.

1149. FERRI ARSENIAS. Arseniate of Iron. A combination of Arsenic Acid and Protoxide of Iron. (3FeO, AsO_5) partially oxidated.

* Opera Med., vol. ii. p. 29. † Obs. on the Cure of Cancer, p. 77.

Med. Prop. and Action. Alterative and tonic. It is believed to possess the combined properties of Iron and Arsenic. It is chiefly used in skin diseases, accompanied by anæmia.

Dose, gr. $\frac{1}{10}$—$\frac{1}{5}$.

1150. *Therapeutic Uses. In Elephantiasis, Eczema, Psoriasis, Lepra, Lupus, Lichen*, and in other obstinate cutaneous diseases, Biett employed the following formula with success :—℞ Ferri Arsen. gr. iij., Pulv. Altheæ vel Glycyrr. ʒss., Syr. Aurant. q. s ; mix very thoroughly, and divide into forty-eight pills, of which one is to be taken daily. It was also used externally, in the form of ointment (ℑj.—ʒss. to ʒj. of Cerate). According to Duparc,* this salt in doses of gr. ½ daily is competent in the adult to effect the cure of a *herpetic or squamous affection*, however extensive or long-established.

1151. *In Cancer*, it was employed externally by Mr. Carmichael ; but, from the danger attendant upon the application of arsenical preparations to ulcerated surfaces, it has been abandoned in these cases.

1152. FERRI BROMIDUM. Bromide of Iron. (FeBr.) It becomes decomposed on exposure to the air : Bromine is set free and Peroxide of Iron formed. It is therefore best given in combination with Syrup, by which its oxidation is prevented.

SYRUPUS FERRI BROMIDI. Syrup of Bromide of Iron. Prepared by heating together 200 grs. of Bromine, 85 grs. of Iron filings, and 2,000 grs. of Water, until the solution becomes of a light green colour. It is then filtered, and 1400 grs. of Sugar dissolved in it by aid of a gentle heat. †

Med. Prop. and Action. Tonic, alterative, and resolvent. In America it has been used with benefit in the treatment of *Scrofulous Tumours, Glandular Enlargements, Erysipelas*, and *Amenorrhœa*. On the Continent it has been successfully employed in the treatment of *Hypertrophy of the Uterus*. It appears to resemble the Iodide in its therapeutical action. The Syrup has been prescribed in *Phthisis, Tubercular Affections*, and *Bronchocele*. Externally, it has been used in the form of ointment as an application to *Scrofulous Swellings*. (Bromide of Iron, one part ; Glycerine, one part ; Pure Lard, fourteen parts). ‡

Dose of the Salt, gr. j.—gr. iij. in pill ; of the Syrup, ♏xx., gradually increased.

1153. FERRI CARBONAS SACCHARATA. Saccharated Carbonate of Iron. Ferri Carbonas cum Saccharo. Carbonate of Iron with Sugar. Carbonate of Iron (FeO, CO_2) mixed with Peroxide of Iron and Sugar, and forming at least 57 per cent. of the mixture. Prepared by decomposing a solution of Sulphate of Iron by means of Carbonate of Soda, collecting the precipitated Carbonate of Iron on a filter, subjecting it to expression, and then rubbing it with Sugar in a porcelain mortar, and drying the mixture at a temperature not exceeding 212°.

* Med. Times and Gaz., Sept. 2, 1864.

† Draper, Manual of the Iron Preparations, p. 12.

‡ Ibid.

Med. Prop. and Action. Hæmatinic, tonic, and emmenagogue. It possesses no astringency. In its operation it closely resembles the other salts of Iron (sect. 1136).

Offic. Prep. 1. Mistura Ferri Composita (See Ferri Mistura Comp.).
2. Pilula Ferri Carbonatis (Saccharated Carbonate of Iron oz. j.; Confection of Roses oz. ½). Dose, gr. iv.—gr. xx. or more.

Dose of the Saccharated Carbonate, gr. iij.—gr. xx. or more.

Carbonate of Iron may also be given in aërated solution. 3,000 parts of a solution of Carbonic Acid prepared at the ordinary pressure of the atmosphere will hold in solution one part of Carbonate of Iron. If the solution be made with the aid of the apparatus employed in manufacturing aërated waters, it has the advantage of being less liable to change, and of containing an excess of Carbonic Acid.* The Ferri Carbonas Effervescens of Dr. Skinner, of Liverpool,† is another convenient form of administering Carbonate of Iron. It is a granulated compound, containing Carbonate of Iron, Tartrate and Citrate of Soda, Sulphate of Soda and Sugar. 90 grs. contain 4 grains of Carbonate of Iron. Dose, gr. lx.—gr. xc. in Aq. fl. oz. v., two or three times a day.

Therapeutic Uses. Similar to those of Ferri Peroxidum.

1154. *In Habitual Constipation*, Dr. Graves‡ considers that the value of the Carbonate of Iron has not been duly appreciated, and adds that he has succeeded in curing with it alone a patient who had long been subject to extreme constipation, and who had been reduced to the necessity of taking an immense dose of purgatives almost every week.

1155. FERRI CITRAS. The Citrate of Iron. Two Citrates are employed in medicine: 1, The Protocitrate, or the Citrate of the Protoxide of Iron; 2, The Percitrate, or the Citrate of the Peroxide of Iron. These salts have often been confounded with Ferri et Ammoniæ Citras, the three salts having been indiscriminately called the Citrate of Iron.

Med. Prop. and Action. Mild chalybeates.

The dose of the Protocitrate is gr. ij.—viij. in pills; of the Percitrate, gr. ij.—x. in pill or solution, with Syrup.

Therapeutic Uses. The same as those of Ferri Ammonio-Citras; but they are of inferior value, having a strong taste and not combining with alkalies.

1156. FERRI FERRO-SESQUICYANIDUM. Sesqui-Ferrocyanide of Iron. Prussian Blue. (4 Fe, 3 Cfy) or (7 Fe, 9 Cy). Eq. Wt. 430.

Med. Prop. Tonic, sedative, in doses of gr. v. three or four times a day; used externally in the form of ointment (gr. lx., Lard oz. j.); rarely used.

1157. *In Intermittent and Remittent Fevers*, it was successfully employed by Zollickoffer,§ in doses of gr. iv., repeated two or three times daily.

1158. *In Epilepsy*, Dr. Kerchoff prescribed it with advantage, in doses of gr. j., increased to gr. iij. (Thompson.)

* Draper, op. cit.
† Brit. Med. Journ. and Dublin Med. Press, June 1862.
‡ Clin. Lect., vol. i. p. 214.
§ Philadelph. Journ. of Med. Sciences, vol. v. p. 207.

1159. *To Cancerous Ulcers*, it has been employed in the form of ointment, but with no evident advantage.

1160. FERRI IODIDUM. Iodide of Iron; called also the Ioduret, the Hydriodate, and the Proto-Iodide of Iron. FeI + 5 HO. A compound of Iron 14, Iodine 63·3, Water 22·7, in 100 parts.

Med. Prop. and Action. Tonic, emmenagogue, and deobstruent. The syrup is the best form for administration. It is a very valuable salt, and is particularly adapted for persons of a scrofulous diathesis. Its effects as a tonic are soon evident, promoting digestion, increasing the appetite, and improving the general health. It is absorbed into the system and is eliminated by the kidneys, both the constituents having been detected in the urine, after its administration. In large doses (gr. x.) it often occasions much gastric irritation, vomiting, and sometimes diuresis. The fæces are blackened by it, as by the other salts of Iron.

Offic. Prep. 1. Syrupus Ferri Iodidi. (Prepared by digesting Iodine oz. ij. and Fine Iron Wire oz. j. with Distilled Water fl. oz. iij. at a gentle heat, till the froth becomes white. The liquid is then to be filtered whilst hot into a syrup composed of Sugar oz. xxviij. and Distilled Water fl. oz. x., and mixed. The product should weigh 2lbs. 11oz. and have the sp. gr. of 1·385.) Fl. drm. j. contains gr. ivss. of the Iodide. Dose, ℥xv.—fl. drm. j.

2. Pilula Ferri Iodidi. (Prepared by agitating grs. xl. of Fine Iron Wire with grs. lxxx. of Iodine and ℥l. of Distilled Water in a strong stoppered ounce phial until the froth becomes white. The fluid is then poured upon grs. lxx. of powdered refined sugar in a mortar, and triturated briskly; grs. cxl. of Liquorice powder are then to be gradually added to the mixture.) Gr. j. of Iodide of Iron is contained in gr. iiss. of the pill. Dose, gr. iiss.—gr. viij. or more.

Dose of the Iodide of Iron, gr. j.—v. or viij.

Incompatibles. Acids; Alkalies and their Carbonates; most Metallic Salts; all vegetable astringents; and many organic solutions.

1161. *Therapeutic Uses. In Anæmia connected with Phthisis and Scrofula*, Dr. Turnbull* considers that this is one of the best of tonics, where it does not prove too stimulating. It seems to promote the secretions more than any of the other salts of Iron, and it sometimes acts as a diuretic. It may also be given with advantage in all cases of Anæmia, associated with glandular enlargements and other scrofulous manifestations. The syrup, in doses of ℥xx.—fl. drm. j. thrice daily, is the best form.

1162. *In Scrofulous enlargement of the Lymphatic Glands, in Tabes Mesenterica, and other forms of Scrofula*, attended with debility and emaciation, the Iodide of Iron, in the form of syrup, is a powerful and efficacious remedy. It improves the general health, and, at the same time, causes a marked reduction of the size of enlarged glands.

1163. *In Phthisis*, it was strongly advised by Dupasquier,† who states that, in some apparently hopeless cases, it effected a perfect cure; and that it always produced amelioration for a

* Lectures on Plethora and Anæmia, Lancet, April 1846.

† Journ. de Pharm., March 1841.

shorter or longer time. Louis,* however, gave it a fair trial, and reported unfavourably of it. Dr. Cotton† thus sums up the result of his experience with the Iodide in Phthisis:—1. Syrup of the Iodide of Iron, in doses of f℥j. twice or thrice daily, occasionally produces headache, with some dyspeptic symptoms, but for the most part it agrees very well with consumptive patients. 2. Although very far from exhibiting a specific effect, it nevertheless seems to act very beneficially in a fair number of consumptive cases, especially when the disease is only in an early stage. 3. Under its influence the patient's weight is generally increased. It may be advantageously combined with Cod Liver Oil.

1164. *In Amenorrhœa and Dysmenorrhœa*, Drs. Turnbull,‡ Williams, Thompson, Ranking, and others, speak highly of the value of the Iodide, particularly when they occur in women of a scrofulous habit. A return of the catamenia has, in many instances, speedily followed the use of the Iodide; it is best given in the form of the Syrup, fl. drm. ss.—fl. drm. j. thrice daily. Dr. Turnbull considers that it possesses a directly stimulating action on the uterus.

1165. *In Chlorosis*, accompanied by much torpor of the system, and where none of the symptoms referable to particular organs are very marked, the Iodide is often speedily efficacious. Dr. Ashwell§ speaks highly of the following formula:—℞ Ferri Iod. gr. xvj., T. Calumb. f℥j., Aq. f℥vij., M. sumat. coch. mag. ij. bis terve quotidie.

1166. *In Leucorrhœa*, the Iodide, internally and externally, has proved serviceable. At the same time that it is given internally, an ointment (℥j.–Lard ℥j.) is advised by Pierquin‖ to be rubbed into the upper part of the thighs; and Ricord¶ recommends it in the form of vaginal injection (℥ss.—℥j. ad Aq. f℥viij.). *In Gonorrhœa*, an injection (gr. j.—Aq. f℥j.) has been spoken of as efficacious.

1167. *In Catarrh of the Uterus*, Prof. Strohl,** of Strasburg, recommends the injection into the uterus of a solution of the Iodide of Iron (℥j.—Aq. f℥xij.). Of 29 cases, 25 recovered under its use. (See art. Uterine Injections, part ii.)

1168. *In Albuminuria*, the Iodide of Iron has occasionally proved highly serviceable; it is particularly indicated in old, broken-down constitutions. In one case,†† a complete cure was effected by its means, in doses of gr. ½, gradually increased to gr. j. daily.

1169. *In Diabetes*, the Iodide promises to be a remedy of great

* Walshe's Trans. of Louis on Phthisis.
† Med. Times and Gaz., June 16, 1860.
‡ Op. cit.
§ On Diseases Peculiar to Women, Lond. 8vo, 1845.
‖ Quoted by Pereira, vol. i. p. 850.
¶ Journ. de Pharm., vol. xxiii.
** Med. Times, Dec. 16, 1848.
†† Ibid., vol. xvi.

value. It should be commenced in small doses, and persevered in for a long period, associating with it a diet of light animal food and cruciferous vegetables. (See sect 148.)

1170. *In Secondary Syphilis*, when the constitution is much debilitated and cachectic, a course of the Iodide of Iron, with the decoction of Sarsaparilla, often proves essentially useful. Mercurials in every form should be carefully avoided.

1171. *In Organic Disease of the Ovaries*, Dr. Copland* states that the Iodide has appeared to him to act most beneficially. *In Ovarian Dropsy*, he also reports favourably of its operation. To its internal use should be conjoined the external application of Iodine to the inner sides of the thighs, or over the abdomen.

1172. *In Chronic Diseases of the Liver*, the Iodide is occasionally productive of great benefit. Dr. Venables† speaks highly of its efficacy, and advises it to be commenced in doses of gr. j., thrice daily, and gradually increased, when the symptoms warrant it, to gr. x.; but it is seldom that so large a dose can be required.

1173. FERRI LACTAS. Lactate of Iron. Best obtained by decomposing solution of Lactate of Lime with a solution of Sulphate of Iron.‡

Med. Prop. and Action. Mild chalybeate. MM. Gelis and Conté state that they were led to the preference of Lactate over the other salts of Iron from the Lactic Acid which exists in the gastric juice acting upon it more readily than upon any other ferruginous salts. Dr. A. Cordier§ has lately arrived at a similar conclusion. Its superiority in any respect, however, is doubtful.

Dose, gr. x.—gr. xx., in divided doses, daily.

1174. *Therapeutic Uses. In Anæmia and Chlorosis* it was successfully employed by Gelis and Conté;‖ and in *Amenorrhœa* and in *Dysmenorrhœa*, by Bouillard.¶ It has no especial efficacy to recommend it.

1175. FERRI MISTURA COMPOSITA. Griffith's Mixture. *Prep.* Take of Sulphate of Iron grs. xxx., Carbonate of Potash grs. xxv., Myrrh in powder grs. lx., Sugar grs. lx., Spirit of Nutmeg fl. drm. j., Rose Water fl. oz. viij. Triturate the Myrrh and Carbonate of Potash with the Sugar, the Spirit of Nutmeg, and seven ounces of the Rose Water, the latter being gradually added until a uniform mixture is obtained. To this add the Sulphate of Iron previously dissolved in the remaining ounce of Rose Water, and enclose the mixture at once in a bottle, which should be

* Dict. Pract. Med., vol. i. p. 656.
† Cyc. Pract. Med., vol. iv. p. 261.
‡ Draper, op. cit., p. 56.
§ Ranking's Abstract, vol. xxxix. Jan. 1864, p. 341.
‖ Brit. and For. Med. Rev., vol. xx.
¶ Ibid., vol. x. p. 565.

tightly corked. The Iron in this mixture is in the form of Carbonate. It is converted into the Peroxide by keeping, if air be not excluded.

Med. Prop. and Action. Blood restorative, tonic, emmenagogue, and antihectic.

Dose, fl. oz. j.—fl. oz. ij., two or three times daily.

Therapeutic Uses, those of the Saccharated Carbonate of Iron. It has long had a high repute in the treatment of *Chlorosis* and *Amenorrhœa*.

1176. *In Hectic Fever, Phthisis*, this formula has obtained great celebrity; it is often productive of marked benefit, particularly when much debility and anæmia exist. It occasionally causes headache, nausea, and heat of skin, in which case it should be discontinued.

1177. *In Epilepsy arising from Anæmia or debility*, Dr. Hope* particularly recommends this formula, above the other preparations of Iron, in doses of f℥x. with f℥j.—f℥iij. of the decoction of Aloes, thrice daily. It should be taken one or two hours after meals, as on an empty stomach it occasionally creates nausea; and should be persevered in for a month at least.

1178. *In Granular Disease of the Kidney*, Dr. Copland† states that he has derived great benefit from the salts of Iron, particularly from the Mist. Ferri Co.

1179. *In Chronic Bronchitis*, Dr. Graves‡ prescribes this mixture with the view of improving the general system, and checking the superabundant secretion from the bronchial tubes. He prefers this mixture to a simple chalybeate, because the other ingredients, namely the myrrh and potash, have a tendency to produce the same effect. He orders f℥j. or f℥ij. to be taken thrice daily, and dilutes this quantity with f℥ss.—f℥j. of almond emulsion or mint water. Given in these small doses, he considers the remedy to be safer and more effectual.

1180. FERRI OXIDUM MAGNETICUM. Magnetic Oxide of Iron. Ferri Oxidum Nigrum. Peroxide of Iron, Fe_2O_3, with about 9 per cent. of Protoxide of Iron, FeO, and 20 of Water.

Med. Prop. and Action. The same as those of Reduced Iron (see FERRUM REDACTUM).

Dose, gr. iij.—gr. v. or more.

1181. FERRI PERCHLORIDI LIQUOR. Solution of Perchloride of Iron. (*Offic.* Brit. Pharm.) Perchloride of Iron (Fe_2Cl_3) in solution in Water. An orange brown solution, without

* Lib. of Med., vol. ii. p. 19.
† Dict. Pract. Med., vol. ii. p. 657.
‡ Clin. Lect., vol. ii. p. 17.

smell, but possessing a strong styptic taste; miscible with Water and Alcohol in all proportions. *Prep.* Dilute fl. oz. x. of Hydrochloric Acid with fl. oz. v. of Distilled Water; pour the mixture in successive portions on oz. ij. of Iron Wire, applying a gentle heat when the action becomes feeble, so that the whole of the metal may be dissolved. To fl. drs. vj. of Nitric Acid add Distilled Water fl. oz. ij., and pour this mixture into the solution of Iron; evaporate the whole until the bulk is reduced to fl. oz. x. Sp. Gr. 1·338.

According to Mr. Squire,* the Liq. Ferri Perchloridi (Pharm. Brit.) has a sp. gr 1·395, is almost black, and contains both Protochloride of Iron and free Nitric Acid.

Solutions of Perchloride of Iron are made of various strengths: the density of 30° Beaumé is advised in some cases (as Varices, &c.); whilst a solution of 20°, or even 15° Baumé, is deemed sufficiently strong for others, as Aneurisms, &c.† When properly prepared, it is a limpid fluid of a dark brown colour, exhibiting a greenish tint when held to the light, inodorous, of a strong chalybeate astringent taste.

Med. Prop. and Action. Powerful astringent and styptic, whether administered internally or applied externally. According to M. Delcau,‡ it is the most powerful hæmostatic known, acting as a modificator of living tissues generally, but especially of mucous membranes; hence, its value as an anti-syphilitic and anti-scrofulous remedy. As a local or external agent, it is described at length in the following sections.

Dose of Liq. Ferri Perchloridi (Pharm. Brit.), ℥iij.—℥x. in syrup or water.

1182. *Therapeutic Uses. In Aneurisms*, injections of the Perchloride were first practised by Dr. Pravaz,§ of Lyons, in 1853; and numerous cases of its successful application were recorded by Velpeau,‖ Bonnet,¶ Jobert,** Serre,†† Adams,‡‡ and others; but if we are to credit M. Malgaigne,§§ the practice is fraught with so much danger, that no prudent man should have recourse to it. He states that of eleven cases treated by it there were four deaths,

* Companion to the Pharmacopœia, p. 84.

† It may be advisable here to explain that the density or strength of the solutions used in France is regulated according to the degrees of Baumé's hydrometer. Thus a solution is said to be 45° or 30°, and so on. Now, a solution of 45° Baumé (55° Fahrenheit) is of the specific gravity 1·455; one of 30° = sp. gr. 1·20; one of 20° = sp. gr. 1·16, and one of 15° = sp. gr. 1·114. It has been shown by M. Burin du Buisson, that to obtain a solution of 15° it is not sufficient to add two parts of water to one of a solution of 45°, but it requires more than two and a half parts of water. He finds that 100 parts of a solution at 45° (sp. gr. 1·455) contains 43 parts of the Perchloride and 57 of water. Moreover, he states that a careful estimate of the strength of the several solutions gives this general result:—5 parts of the solution at 45° equal 10 parts at 30°; 15 parts at 20°; or 20 parts at 15°. So that any given quantity of the solution at 45° may be easily converted into either of the other strengths.

‡ Ann. de Thérap., 1858, p. 213.

§ Ibid., 1853, p. 213.

‖ L'Union Méd., Aug. 25, 1853.

¶ Archiv. Gén. de Méd., Aug. 1853.

** Comptes Rendus, June 1854.

†† Archiv. Gén. de Méd., June 1853.

‡‡ Med. Times, Aug. 1853.

§§ Jamin et Wahu, Ann. de Méd., 1854, p. 131.

five serious complications, and only two cures. There can be no doubt that the brilliant anticipations awakened by Pravaz's statements have not been fully realized, but evidence is wanting in support of M. Malgaigne's condemnation. The practice consisted in injecting a few drops of a saturated solution (20° or 15° Baumé) of the Perchloride by means of a fine gold trocar, the point of which was introduced very obliquely through the walls of the artery; to this trocar a syringe was adjusted, the piston of which moved by a screw, so that the liquid could be steadily injected, and the quantity be accurately estimated. A few drops (three or four) generally sufficed. The flow of blood from the artery at the time of injection was arrested by pressure above and below the punctured point.

1183. *In the Treatment of Varicose Veins*, injections of the Perchloride have been advocated by Carron,* Foulin,† Desgranges,‡ and others. From its use in nineteen cases, Desgranges draws the following conclusions:—1. The injection is an innocent but an extremely delicate operation, requiring great care on the part of the surgeon; 2. Baumé's solution at 30° is that best adapted for Varices; 3. Two drops suffice for the coagulation of all the blood in the largest Varicose lobules—to inject more would be both dangerous and useless; 4. The injection must not be made unless blood issuing from the canula proves that we have entered the vein; 5. Only one injection should be made at a time, an interval being then allowed, and a spot next selected as remote as possible from the previous injection; 6. When both legs are subject to Varix, the injection may be employed on both on the same day, if the patient is in good health; 7. We must pursue the Varices as long as the veins are penetrable, so that the mean duration of treatment cannot be assigned; 8. As regards the pain, the accidents, and the results of the operation, the injection of the Perchloride is preferable to other means of treatment; 9. The obliterated vein remains impermeable to the blood; 10. The injection exerts the best effects on *Varicose Ulcers*, changing their nature, and causing rapid cicatrization. Cases of *Nævus* cured by the injection of the Perchloride are recorded by Mr. Cooper,§ Mr. C. Forster,‖ and others. It seems to produce simple coagulation of the blood, with little or no inflammation. The practice, however, is dangerous. Instantaneous death has followed in several instances. One of these occurred in the practice of Mr. R. B. Carter.¶

* Ann. de Thérap., 1857, p. 170.

† Braithwaite's Retrospect, xxix. p. 296.

‡ Mém. de la Soc. de Chir. de Paris, 1856, vol. iv. p. 7.

§ Association Med. Journ., April 5, 1856.

‖ Lancet, Dec. 24, 1853.

¶ Med. Times and Gaz., Sept. 5, 1863.

1184. *In Hospital Gangrene*, the value of the local application of the Perchloride is attested by M. Maupin* and M. Salleron.† It is thought to be superior to the mineral acids. The pain it causes is at first excessive, but this soon subsides. *To Fungous Tumours, Uterine Polypi, Hæmorrhoidal Tumours*, &c., it has been found a valuable application, not only for *arresting hæmorrhage*, but as a curative agent. As a means of arresting *hæmorrhage in Cancer of the Uterus*, injections of the Perchloride (ʒv. ad Aq. ʒlxxx.) are advised by Dr. Remilly.‡ He mentions four cases thus treated with benefit. A severe case of *Onychia*, cured by the application of an ointment composed of equal parts of the Perchloride and Lard, is recorded by Dr. Alcantara.§ In *Zona*, at any period during its evolution, Dr. Gressey‖ recommends the application of a concentrated alcoholic solution of the Perchloride. The vesicles should not be opened, in order to save the patient useless pain.

1185. *In Purulent Ophthalmia*, the Perchloride, according to Dr. De Conde,¶ exercises an instantaneous hæmostatic effect upon the hæmorrhagic mucous membrane, and also a marked influence upon the secretion. *In Panniform Keratitis*, it has been successfully employed by M. Foulin** and others. A large drop of the solution (Baumé 30°) is dropped into the eye by means of a quill every second or third day.

1186. *In Acute and Chronic Urethritis*, the Perchloride internally and locally, in the form of injection, is favourably reported of by M. Barudel.†† *As a means of destroying Syphilitic Infection*, M. Rodet‡‡ suggests the practice of thoroughly bathing the parts to which the virus has been applied, before it has time to become absorbed into the system, with the following lotion:—℞ Ferri Perchlorid. fʒj., Acid Hydrochlor. fʒiss., Aquæ fʒj., M. Experiments on himself seem to attest its efficacy. Dr. M. Mackenzie§§ has recorded a case of *syphilitic stenosis of the larynx* in which inhalation of a "pulverized solution" of Perchloride of Iron (gr. v. ad fʒj.) was followed by most satisfactory results, all cough and stridor rapidly disappearing.

1187. *In Phthisis*, the Perchloride, according to Dr. J. Jones,‖‖ undoubtedly possesses the power of arresting the development of tubercle, at the same time that it alters the constitutional condition which precedes and attends its development. In every stage

* Mém. de Méd. Militaire, xx. p. 368.

† Recueil de Mém. de Chir. Militaire, 3rd Series, vol. ii p. 279.

‡ Med. Times and Gaz., Feb. 25, 1854.

§ Ranking's Abstract, xxviii. p. 258.

‖ Med. Times and Gaz., July 18, 1863.

¶ Ann. d'Oculistique, 1858.

** Archiv. Gén. de Méd. June 1856.

†† Bull. Gén. de Thérap., May 15, 1858.

‡‡ Gaz. Hebd. de Méd., Jan. 12, 1855.

§§ Med. Times and Gaz., March 5, 1864.

‖‖ On the Use of the Perchloride of Iron, &c. Lond. 1862.

he regards it as more or less beneficial. His testimony in its favour is very strong—perhaps a little too highly coloured.

1188. *In Dysentery*, M. Baudon* obtained excellent effects from the Perchloride (gutt. xij.—xxx. in water and syrup in the twenty-four hours). He also used it (gutt. xij.—xxv.) in enemas, combining it with Opium if there was much pain.

1189. FERRI PERCHLORIDI TINCTURA. Tincture of the Perchloride of Iron. Tinctura Ferri Sesquichloridi. Tincture of the Sesquichloride of Iron. Tinct. Ferri Muriatis. Muriated Tincture of Iron. Composed of 5 fl. oz. of Solution of Perchloride of Iron and 15 fl. oz. of Rectified Spirit. This Tincture has the same strength as the Tinct. Ferri Sesquichloridi of the Lond. Pharm., but one-fourth the strength of the Tinct. of the Dub. Pharm.

Med. Prop. and Action. Hæmatinic, tonic, astringent, and diuretic. It is one of the most powerful of the preparations of Iron, and may be advantageously administered whenever these are indicated. Externally it is caustic, applied to *Warts*, &c., and as a styptic to superficial wounds, &c. In large doses it is an irritant poison. Its continued use constipates the bowels.

Dose, ℥x.—℥xl. or more.

Incompatibles. Alkalies and their Carbonates; Lime Water; solutions containing gum; and all vegetable astringent infusions.

1190. *Therapeutic Uses. Diseases of the Genito-Urinary Organs. In Affections of the Bladder depending upon Disease of the Kidneys*, Sir B. Brodie† states that he has employed this Tincture with advantage, in doses of ℥viij.—xvj. twice daily, either in water or infusion of Buchu. It requires to be persevered in.

1191. *In Retention of Urine from Spasmodic Stricture of the Urethra*, the Tincture in ten-minim doses, repeated every quarter or half hour, was first proposed by Mr. Cline.‡ It has been extensively employed, in the majority of cases with success. Occasionally it fails to afford relief. It should not be used to the exclusion of the hot-bath, opiate enemas, &c.

1192. *In Incontinence of Urine in Children*, it is occasionally of great service. It may be given in doses of from ℥iij. to x. thrice daily, either alone or combined with a few drops of T. Hyoscyami.

1193. *In Atonic Hæmorrhage from the Kidneys, Uterus, and Bladder*, occurring in debilitated subjects, it may be given with much advantage, in doses of ℥x.—xx. several times daily. *In Hæmaturia*, Dr. Owen Rees§ considers this the best form of Iron for internal use. Dr. Breslau; of Munich,‖ relates a case of obsti-

* Bull. Gén. de Thérap., Nov. 30, 1861.

† On Diseases of the Urinary Organs, p. 141.

‡ Med. Records and Researches, 1798.

§ Med. Gaz., July 11, 1851.

‖ Med. Chir. Rev., Jan. 1858.

nate *Menorrhagia* cured by injections of this Tincture, fʒiss. diluted with fʒiss. of water.

1194. *In Leucorrhœa and Dysmenorrhœa*, Mr. Clay,* of Manchester, speaks highly of the Muriated Tincture, given as follows:—℞ T. Ferri Sesquichlor. ɱviij., T. Opii ɱxj., Aq. fʒiss., ft. haust. 4tis horis sumend.

1195. *In Chlorosis*, Dr. Golding Bird† considers that it is the best form of Iron which can be employed.

1196. *In Gonorrhœa*, Dr. Pereira‡ states that he has found this Tincture, in combination with T. Cantharidis, occasionally successful in the latter stages of Gonorrhœa, after a variety of other remedies have failed. In cases of *Prostatorrhœa* occurring in weak, debilitated subjects, Prof. Gross§ speaks highly of a combination of this Tincture and Nux Vomica. When the patient is plethoric, antimonials and salines are indicated.

1197. *Other Diseases. In Albuminuria*, the red globules of the blood have been found much impoverished, and consequently the salts of Iron are clearly indicated. Dr. Heaton‖ advises this Tincture as the most generally active and beneficial, and one which combines diuretic and chalybeate properties. In the majority of cases in which he employed it the improvement was most marked and unequivocal. Mr. Dutt¶ relates a case of *Chylous Urine* cured by this Tincture, ɱxv. in infusion of Quassia thrice daily.

1198. *In Diabetes*, especially in that occurring in broken-down constitutions, it has been employed in many cases, with more or less permanent benefit. Mr. Clay** relates three cases which completely yielded to a mixture similar to the following:—℞ T. Ferri Sesquichlor. fʒij., T. Opii fʒiss., Quinæ Sulph. gr. viij., Aq. fʒvj., M. sumat. fʒj. ter in die. Mr. J. Bell†† also relates a case which yielded to the same remedy. The diet should be carefully attended to.

1199. *In Beri-beri*, it was strongly advised by Mr. Ridley, who saw much of this disease in Ceylon. He regarded it as a powerful anti-spasmodic (?), in the acute form of the disease. Mr. Malcolmson,‡‡ in quoting this, remarks that he is not aware of its having been employed to any extent; but it is to be observed that Iron is one of the most approved remedies of the Teloogoo doctors. They use it, mixed with the astringent juice of the mango and other trees; probably in the form of an oxide, united with gallic acid.

1200. *In the profuse perspirations of Phthisis*, Dr. Watson§§

* Lancet, Dec. 5, 1840.
† Obstetric Record, March 1849.
‡ Materia Medica, vol. i. p. 845.
§ North American Med.-Chir. Rev., July 1860.
‖ Provincial Journal, April 4, 1849.
¶ Lancet, July 26, 1862.
** Ibid., Oct. 10, 1840.
†† Med. Gaz., April 29, 1842.
‡‡ On Beriberi and Rheumatism, p. 284.
§§ Lectures, vol. ii. p. 215.

states that he has frequently succeeded with this Tincture in doses of ♏xx. thrice daily, after other expedients had failed. Dr. Cotton* regards it as one of the most useful agents in the treatment of ordinary cases of *Phthisis*. Upwards of 66 per cent. of cases treated with it derived more or less advantage from its use.

1201. *In Dyspepsia connected with Scrofulous Disease*, Dr. Todd† speaks favourably of the following formula:—℞ T. Ferri Sesquichlor., T. Iodinii (Ph. Lond.) āā ʒij., Aq. fʒss., M. sumat. gutt. x.—xxx. ter in die ex aquâ.

1202. *In Hysteria connected with Debility*, the Tincture, ♏viij.—x., in combination with Spt. Ammon. Aromat., is often signally beneficial. Bathing, generous diet, and gentle exercise, are measures which should never be neglected.

1203. *Against Ascarides Vermiculares*, Dr. Darwell speaks highly of an enema composed of fʒss. of this Tincture in Oss. of Water. He says that few cases are so obstinate that this will not overcome them. A brisk purgative of Jalap and Calomel should be given previously.

1204. *In Erysipelas*, Mr. Bell,‡ of Edinburgh, states that for five and twenty years he has constantly employed the Tincture, internally, with the best effects. In no instance did it fail to afford relief, and the patient has generally been left in a more robust state of health than he was previously. After the administration of a brisk purgative, he advises, if the disease be mild, to give ♏xv. of the Tincture every two hours, until the disease is completely removed. When the attack threatens to be more severe, the dose is increased to ♏xxv. every two hours, and persevered in night and day, however high the fever and delirium. The only local applications employed are hair-powder and cotton wadding. The bowels, throughout the whole treatment, should be carefully regulated. The diet should be generous. He relates seven cases in which the remedy was productive of unequivocal benefit. Dr. Charles Bell, brother of the above gentleman, also bears testimony to the value of this remedy, particularly in *Infantile Erysipelas*, in which cases it may be given in doses of ♏ij.—iij. every two hours. He adds, "The beneficial effects of this medicine are so immediate and invariable in the common forms of Erysipelas, that I feel convinced, were it given with boldness and perseverance in *Puerperal Fever*, which is now generally admitted to be analogous in its nature, and frequently accompanied by erysipelatous inflammation on the surface of the body, many valuable lives might be preserved." Mr. H. Meade§ was led, from the great success he met with in the

* Lancet, Oct. 25, 1862.
† Cyc. Pract. Med., vol. ii. p. 657.
‡ Monthly Journ. of Med. Sciences, June 1851.
§ Med. Times and Gaz., June 26, 1858.

treatment of Erysipelas by this agent, to extend its use to *Scarlatina*, and he speaks in the highest terms of its efficacy in this affection. He prescribes ♏v.—xv., according to the age of the patient, every three or four hours. To ulceration of the throat, he applies a solution of the Nitrate of Silver. *In Diphtheria*, its value as an internal remedy is very favourably spoken of by Dr. Ranking.* *In Purpura Hæmorrhagica*, it is regarded by M. Pize† as pre-eminently the agent for the cure of the disease. He states that it arrests the hæmorrhagic tendency in twenty-four or forty-eight hours, and that when continued for a few days it rapidly brings about convalescence.

1205. *In Favus*, Mr. E. Wilson‡ prescribes the salts of Iron internally, but prefers the Tinct. Ferri Sesquichlor. in doses of ♏x. thrice daily, for a child of ten years old. If the disease is associated with Scrofula, it may be combined with Cod Liver Oil.

1206. *In Epistaxis*, the injection into the nostrils of the dilute Tincture (fl. drs. iss.—fl. drs. ij. in Aq. fl. oz. vj.) is often effectual in arresting the hæmorrhage. *In Hæmorrhage from Leech-bites*, the pure Tincture is a good styptic; and in *that after the extraction of teeth*, it was found by Mr. Cochrane§ to succeed when every other remedy had failed.

1207. *To Venereal Warts and spongy Granulations*, the undiluted Tincture, locally applied, is a safe and efficient caustic.

1208. *Ulcers attended with profuse discharge, fungous sores, &c.*, are much benefited by the application of this Tincture, either pure or diluted.

1209. FERRI PERNITRATIS LIQUOR. Solution of the Pernitrate of Iron (Fe_2O_3, 3 NO_5) in water. Prepared by dissolving Iron Wire in Nitric Acid and diluting with Distilled Water. Each fl. drm. contains 7·865 grs. of Pernitrate of Iron. Sp. gr. 1·107.‖

Med. Prop. and Actions. Astringent and tonic in doses of ♏x.—fl. drm. j. in water; diluted, it has also been used as an enema and injection.

1210. *Therapeutic Uses. In the Diarrhœa of Children*, its efficacy has been established by Mr. Kerr,¶ Prof. Graves,** and many others. It may be given in doses of a few drops, according to the age of the child, and it may be employed in the form of enema (♏x.—xij.). It appears to be a safe and efficient remedy.

1211. *In Exhausting Hæmorrhage, whether from the Lungs, Stomach, Kidneys, or Uterus*, this preparation is reported to be

* On Diphtheria, 1859.
† Journ. of Pract. Med., Aug. 1860.
‡ Diseases of the Skin, p. 471.
§ Lancet, April 23, 1842.
‖ Garrod, Essent. Mat. Med. and Therap., p. 78.
¶ Edin. Med. Surg. Journ., vol. xxxvii. p. 99.
** Clin. Lect., vol. ii. p. 227.

very efficacious. It requires to be given in large doses, from fl. drm. ss. to fl. drm. j.

1212. *In Chronic Bronchitis, Diarrhœa, Dysentery, Gleet, Pyrosis, Menorrhagia, and Leucorrhœa*, Mr. Postgate* employed it with signal benefit. He states that, in all diseases attended with much debility, profuse discharges from the mucous surfaces, and where tonics and astringents are indicated, he has found this remedy, in doses of gutt. x.—xv. thrice daily, very advantageous.

1213. FERRI PEROXIDUM. Peroxide of Iron. Ferri Sesquioxidum. Sesquioxide of Iron; called also the Carbonate, the Subcarbonate, the Deutocarbonate, and the Red Oxide of Iron. (Fe_2O_3, HO.) A compound of Iron 70, Oxygen 30, in 100 parts; or, 2 Eq. Iron $(2 \times 28) = 56 + 3$ Oxygen $(3 \times 8) = 24 = 80$, Eq. Wt.

Med. Prop. and Action. Blood restorative, tonic, and emmenagogue. It is also anthelmintic. The objections to its use are its disagreeable taste, and the quantity required to be taken before its specific effects are evident. It is an unirritating preparation of Iron, although it occasionally causes dyspeptic symptoms; and during its use occasional aperients are necessary to prevent it accumulating in the system. It speedily blackens the fæces. It is best given in honey or treacle.

Offic. Prep. Emplastrum Ferri (Peroxide of Iron oz. j.; Burgundy Pitch oz. ij.; Litharge Plaster oz. viij.).

Dose, gr. x.—gr. lx. or more.

1214. *Therapeutic Uses. In Anæmia*, this, in common with the other preparations of Iron, is of great value. Dr. Ashwell† recommends the subjoined formula, which will often be borne where the other ferruginous compounds cause irritation:—℞ Ferri Sesquiox. gr. viij., Pulv. Ipecac. Rad. gr. j., Hydrarg. c. Cret. gr. ij., M. ft. pulv. bis in die sumend.

1215. *In Atonic Amenorrhœa*, the Peroxide, in combination with aloetic purgatives, is of signal benefit. M. Bland found it effect a cure, on an average, in twenty-one days; and Dr. Churchill‡ states that he has seen great benefit from its use. *In Chlorosis*, it is also an excellent remedy, in doses of gr. lx. thrice daily, given in combination with fl. drm. ss. of Spt. Ammon. A. or gr. v.—x. of Soda.

1216. *In Hysterical Affections, particularly Aphonia*, this preparation has been found of great service, given in the formula advised by Dr. Robertson:§—℞ Ferri Subcarb. ℈j.—℥ss., Pulv. Valerian. gr. x., M. ft. pulv. ter in die sumend. The shower-bath, at first tepid and afterwards cold, should be employed at the same time.

1217. *In Diabetes* attended with much debility, it is some-

* Med. Times, vol. xviii. p. 171.
† Diseases Peculiar to Females, 1845.
‡ Midwifery, p. 58.
§ Cyc. Pract. Med., vol. i. p. 118.

times of great service. Dr. Prout* regards it "as an excellent remedy."

1218. *Nervous and Spasmodic Affections. In Tic Douloureux and other Neuralgic Affections*, the Peroxide of Iron has been successfully employed by Mr. B. Hutchinson,† Dr. Elliotson,‡ Sir Astley Cooper,§ and others. Dr. Elliotson strongly advocates its use, and relates several cases successfully treated by it, in doses of ʒj. every six hours, and gradually increased until much larger quantities are taken. Children of eight years old will take from ʒiv.—ʒvj. daily. Strict attention to the bowels is necessary. It is necessary to add that, in other hands, it often fails. It is particularly indicated in Neuralgia occurring in debilitated subjects.

1219. *In Tetanus*, it appears to have been occasionally beneficial. In three cases treated by Dr. Elliotson,‖ two recovered. It was administered in doses of ʒij.—ʒss. every two hours; and costiveness obviated, by fʒij. of Ol. Terebinth., followed, if necessary, by Ol. Ricini. It was mixed with twice its quantity of treacle, and blended with strong beef-tea. Mr. Woolan¶ also relates an interesting case, which recovered under its use, in doses of ʒij. every hour. It appears to be chiefly applicable to cases occurring in anæmic subjects, where much blood has been lost, or where the disease is associated with hysteria.

1220. *In Infantile Convulsions*, Dr. Locock** speaks very favourably of this and other preparations of Iron, particularly in those cases where there is any exhaustion or debility, and an absence of any decided determination of blood to the head. He relates, in illustration, the case of a child two months old, who for seventeen days had convulsions three or four times a day, or oftener: these resisted every treatment until Ferri Carb. in doses of gr. v. every two hours was given, when they at once yielded, and the child recovered. A case in which the Peroxide of Iron proved signally beneficial is recorded by Dr. S. Lawrence.†† He considers that in these cases it acts as a nervine or nerve-tonic, lowering the sensibility of the nervous system when preternaturally exalted. He regards it as a mistake deferring the use of Iron until the case becomes chronic or debility supervenes, and lays it down as a maxim, that if all offending matter has been got rid of from the bowels and stomach, and other existing causes of irritation removed,—if the circulation be tranquil during the intervals of the paroxysms, and if no organic change is associated

* On Stomach and Renal Diseases, p. 48.

† Cases of Tic Douloureux successfully Treated, &c. 8vo, 1820.

‡ Medico-Chir. Trans., vol. xiii.

§ Lectures.

‖ Op. cit., vol. xv. p. 161.

¶ Prov. Journ., April 1842.

** Cyc. Pract. Med., vol. i. p. 480

†† Edin. Med. Journ., June 1858, p. 1112.

with the malady,—the exhibition of the Iron cannot be too soon begun.

1221. *Laryngismus Stridulus.* In order to strengthen the system, and diminish the excessive nervous sensibility which is so constantly a cause of this disease, Dr. Merei* thinks highly of this and the other preparations of Iron; but he advises it to be preceded by Cod Liver Oil. If this disagrees, or produces no benefit, Iron may be had recourse to, with every prospect of success. It should be carefully watched, lest the bowels become overloaded.

1222. *In Chorea*, Dr. Elliotson† employed the Peroxide successfully in eight cases. He gave it in doses of ʒss.—ʒj., increased to ʒiij.—ʒiv. every six hours; and, at the same time, employed active aperients. In one very obstinate case, I employed this treatment with success. The purgatives appear greatly to aid the efficacy of the Iron. Dr. Stone‡ considers that it acts both more certainly and more rapidly than Zinc.

1223. *In Hooping-Cough*, Lombard speaks highly of this preparation in doses of gr. xviij.—xl. in the course of the day; and Dr. Steymann also employed it with great success in doses of gr. vj.—viij. daily.

1224. *In Paralysis Agitans* occurring in old debilitated subjects, or when it is associated with Anæmia, the Peroxide of Iron, in full doses, will occasionally prove useful. Dr. Elliotson§ relates a case successfully treated with it, but he found it fail in others. *In Mercurial Tremor*, it is advised by Dr. Watson.‖

1225. *In Angina Pectoris*, when attended by any degree of Anæmia, Dr. Hope¶ speaks of this preparation as one of the most efficacious internal remedies. It may be given in doses of gr. xl.—gr. xc. thrice daily.

1226. *Other Diseases. In Cancer*, Mr. Carmichael** advised the Peroxide in doses of ʒss.—ʒj. daily, in divided doses, combined with Aloes (gr. ½—gr. j.) to prevent constipation. If it produced headache, dyspnœa, &c. it was discontinued, and Camphor (gr. iv. every six hours) was substituted. At the same time, this salt was made into a thin paste with water, and applied externally. He thought highly of its efficacy, but it is now rarely employed.

1227. *In Gout* occurring in persons of debilitated constitution, and in many cases of *Irregular Gout*, the Peroxide of Iron will often be found of the highest service; the bowels having previously been well evacuated, and the urine restored to a healthy condition by alkaline medicines. Such treatment is favourably spoken of by Dr. Robertson.†† *Lithic Acid Deposits,*

* Edin. Monthly Journ., Nov. 1850.
† Med.-Chir. Trans., vol. xiii.
‡ Med. Times, Sept. 17, 1859.
§ Med. Chir. Trans., op. cit.
‖ Lectures, vol. i. p. 682.
¶ On Diseases of the Heart, p. 501.
** On the Effects of the Carb. of Iron upon Cancer, Dublin, 1808.
†† Essay on Gout.

which occasionally depend upon deficient oxygenation, as well as upon a superabundance of proteine articles of diet, have been found to yield to the preparations of Iron. A case in which the Peroxide thus acted is related by M. Cantilena.*

1228. *In Palpitations accompanied by Debility*, Dr. Hope† recommends the Sesquioxide in doses of ʒj.—ʒiij. thrice daily, and a pill composed of Pil. Aloes Co. and Pil. Galban. Co. āā gr. ij. at bedtime. He states that he has seen the best effects follow this treatment.

1229. *In purulent Discharges from the Aural, Nasal, and Vaginal passages, the sequelæ of Infantile Diseases*, Mr. W. Cooke‡ states that he has found the greatest benefit accrue from the use of this preparation, in doses as large as the stomach will bear without discomfort. The local treatment consists of injections of the Sulphate of Zinc (grs. iij.—v. ad Aq. fʒj.). In every case marked improvement followed this treatment.

1230. *Against Worms* (*Ascarides Lumbricoides*), Dr. Rush advises, in strong terms, the use of the Peroxide, in doses of gr. v.—ʒss. daily, with the employment of an occasional purgative.

1231. FERRI PEROXIDUM HYDRATUM. Hydrated Peroxide of Iron. Ferri Sesquioxydum Hydratum. Hydrated Sesquioxide of Iron ($2\,Fe_2O_3$, 3 HO) with a variable amount of uncombined water. *Prep.* Made by precipitating a solution of Persulphate of Iron with Soda. The precipitate is to be collected on a calico filter, and washed with distilled water until the filtrate ceases to give a precipitate with Chloride of Barium. It is to be preserved, without drying, in a well-covered vessel. The preparation should be recently made.

Med. Uses. As an antidote for poisoning by Arsenic, this preparation was first proposed by Bunsen and Berthold, in 1834. It converts Arsenious Acid into an Arseniate of Iron which is insoluble ($2\,Fe_2O_3 + As\,O_3 = 4\,FeO + AsO_5$). It has been extensively tried; and, although some instances are recorded in which it failed to produce any good effect, it is, without doubt, one of the best antidotes we possess. Of thirty-one cases quoted by Dr. Beck,§ recovery took place in twenty-nine. It appears, however, that it is more a mechanical than a chemical antidote. It is stated that thirty-two parts of the Peroxide are required for every part of the arsenic swallowed. It should be given in a moist state, in doses of a tablespoonful, every five or ten minutes, or oftener. Should the Hydrated Sesquioxide not be at hand, the common Sesquioxide may be substituted.

1232. FERRI PHOSPHAS. Phosphate of Iron, 3 FeO, PO_5, partially oxidated. A slate-blue amorphous powder, insoluble in water, soluble in Hydrochloric Acid. (*Offic.* Brit. Pharm.)

* Ranking's Abstract, 1856, vol. xxiv. p. 104.

† Cyc. Pract. Med., vol. iii. p. 237.

‡ Lancet, July 13, 1850.

§ See Med. Gaz., Oct. 15, 1841.

FERRI PERPHOSPHAS. Perphosphate of Iron. Ferri Oxyphosphas. Ferri Sesqui-phosphas. Ferrum Phosphoricum Album. White Phosphate of Iron (Fe_2O_3, 3 PO_5 + 8 HO). A white tasteless powder.

FERRI SUPERPHOSPHAS. Superphosphate of Iron. Acid Phosphate of Iron. A mass of soft consistence without inky taste.

The two first salts have often been confounded, being called indifferently Phosphate of Iron.

The Phosphates of Iron are sometimes administered with other phosphates, in the form of syrups. Several new preparations of this kind have been introduced by different pharmaceutists, *e. g.*, Syrup of Phosphate of Iron and Ammonia; Syrup of Phosphate of Iron and Lime; Syrup of Phosphate of Iron and Manganese, &c. The Pyrophosphate of Iron with Soda or Citrate of Ammonia (known generally as *Soluble Pyrophosphate of Iron*, or simply as *Pyrophosphate of Iron*) is a scaled preparation, containing a variable proportion of the Pyrophosphate of the Peroxide of Iron.*

Med. Prop. and Action. Blood-restoratives, tonics, and alteratives. The Phosphate is best administered in the form of Syrup.

Offic. Prep. of Phosphate of Iron. Syrupus Ferri Phosphatis. (Prepared by precipitating a solution of Granulated Sulphate of Iron, grs. ccxxiv., with a solution of Phosphate of Soda, grs. cc., and of Acetate of Soda, grs. lxxiv. The precipitate is collected on a filter, washed, and pressed between folds of bibulous paper; fl. oz. vss. of Dilute Phosphoric Acid are then added; as soon as the precipitate is dissolved, the solution is filtered, and oz. viij. of Sugar added, and dissolved without heat. Dose, fl. drm. j.—fl. drs. ij.

Dose of Phosphate, Perphosphate, Superphosphate, and Pyrophosphate of Iron, gr. iij.—gr. x.

1233. *Therapeutic Uses. In Cancer*, the Phosphates of Iron were highly esteemed by Mr. Carmichael.† He administered the following pills:—℞ Ferri Phos. gr. xxx.—ʒij., Potas. vel Sodæ Puræ gr. iij., Ext. Aloes gr. iv., Pulv. Glyc. ʒj., Alb. Ovi q. s. ft. pil. xij. Dose, one every two, three, or four hours. At the same time, he applied locally the Phosphate made into a thin paste with water, or an ointment (ʒij., Lard ℥j.). As a remedy for Cancer, it is now abandoned.

1234. *In Diabetes*, the Phosphate has been favourably spoken of by Dr. Venables‡ and Dr. Prout.§ The former directs it to be taken in doses of gr. j.—ij., gradually increased to ʒj.—ʒss. three or four times a day. It appears to exercise a decidedly favourable influence.

1235. The Phosphates of Iron have been extensively used in the treatment of *Rickets*. The Syrup of the Phosphate of Iron and Lime is a preparation introduced for this purpose. It may be given in doses of fl. drm. j., or more, thrice daily.

* Draper, op. cit.

† Essay on the Effects of the Carb. of Iron on Cancer, 2nd Ed., Dub. 1808.

‡ On Diabetes, 8vo, Lond. 1825.

§ On Stomach and Renal Diseases, p. 48.

1236. FERRI POTASSIO-SULPHAS. Potassio-Sulphate of Iron. Potash Iron Alum. ($KO, SO_3 + Fe_2O_3, 3\ SO_3 + 24\ HO.$)

Med. Prop. and Action. Tonic and astringent. The Potash and Ammonia Sulphates of Iron are said to equal, if not exceed, ordinary alum in astringency, and not to possess the stimulating action of the stronger salts of Iron.*

Dose, gr. iij.–gr. vj.

1237. FERRI ET QUINIÆ CITRAS. Citrate of Iron and Quinine. Citric Acid combined with Peroxide of Iron, Protoxide of Iron and Quinia. Prepared according to the formula of the Brit. Pharm., it contains 25 per cent. of Citrate of Quinia.

Med. Prop. and Action. Blood restorative, tonic, and anti-periodic. It possesses the properties of both Iron and Quinine, and is admirably adapted for children and delicate females, being easily borne when the stronger salts of Iron are inadmissible.

Dose, gr. v.—gr. x. or more.

1238. FERRI ET SODÆ ALBUMINATIS SOLUTIO. Solution of the Albuminate of Iron and Soda. Prepared from Sulphate of Iron, caustic Soda and Albumen Ovi. A clear yellow fluid having an alkaline taste, but quite free from astringency or inkiness.

Dose, fl. oz. ss.—fl. oz. j.

Med. Prop. and Action. Hæmatinic and tonic. A combination of Albumen and Iron was first recommended by Lassaigne. Various formulæ have been proposed for its preparation † The theory on which the albuminate is recommended is as follows:—"The blood containing albumen, soda, and iron, the latter in such a form as not to be rendered evident by reagents until the organic combination is broken up, it is inferred that the metal exists as an albuminate of iron and soda, and that in cases where iron is indicated its exhibition in a like form is most calculated to ensure its absorption and assimilation."‡

1239. FERRI ET STRYCHNIÆ CITRAS. Citrate of Iron and Strychnia. *Prep.* Dissolve 980 grs. of Citrate of Iron in 9 oz. of Water, and 10 grs. of Strychnia and 10 grs. of Citric Acid in 1 oz. of Water; mix the solutions, evaporate to a syrupy consistence, and spread on plates to dry in scales.§ It contains 1 per cent. of Strychnia.

Med. Prop. and Action. Blood restorative, tonic, and nervine stimulant. It possesses the combined properties of Iron and Strychnia. It has been successfully employed in cases of *Atonic Dyspepsia*, some forms of *Paralysis*, *Chorea*, and *Amenorrhœa*.

Dose, gr. ij. and upwards. Five grains contain one-twentieth of a grain of Strychnia.

A Citrate of Iron, Quinine, and Strychnia is also manufactured, containing the same proportion of Strychnia.

* Draper on the Iron Preparations, p. 90.

† See Draper, Manual of the Medicinal Preparations of Iron, p. 7.

‡ Draper, op. cit.

§ Draper on the Iron Preparations, p. 28.

1240. FERRI SULPHAS. Sulphate of Iron. Sulphate of the Protoxide of Iron. Protosulphate of Iron. Green Vitriol. Copperas. FeO, SO_3 + 7 HO. A compound of Protoxide of Iron 25·9, Sulphuric Acid 28·8, Water 45·3, in 100 parts; or 1 Eq. Protoxide of Iron = 36, + 1 Sulph. Acid = 40, + 7 Water = 63 = 139, Eq. Wt.

FERRI SULPHAS EXSICCATA. Dried Sulphate of Iron. FeO, SO_3 + HO. Prepared by exposing Sulphate of Iron to a moderate heat, which is finally to be raised to 400° until watery vapour ceases to be given off.

FERRI SULPHAS GRANULATA. Granulated Sulphate of Iron. Prepared by pouring a hot solution of Sulphate of Iron into Rectified Spirit, and stirring the mixture so that the salt shall separate in minute granular crystals.

Med. Prop. and Action. Blood restorative, tonic, astringent, emmenagogue, anti-periodic, and anthelmintic. It is one of the most valuable and effective of the salts of Iron. It is absorbed into the system, and has been detected in the blood and urine after a few doses; it also rapidly renders the fæces black. In large doses it gives rise to much gastric irritability, which may be partially obviated by combining it with Ext. Hyoscyami vel Conii. In excessive doses it is an irritant poison. Externally it is employed in lotions or washes (gr. j.—v.—x. ad Aq. ℥j.). The granulated Sulphate has the advantage of being less prone to become oxidized than the common Sulphate.*

Dose of the Sulphate or granulated Sulphate, gr. j.—gr. iv. or more, in pill or solution, two or three times daily; of the dried Sulphate, gr. ss.—gr. ij. or more.

Incompatibles. Alkalies and their Carbonates; the Chlorides; Nitrate of Silver, the Acetates of Lead, and most other metallic salts; and all vegetable infusions containing Tannic or Gallic Acids.

1241. *Therapeutic Uses. In Anæmia*, Dr. Turnbull† regards the Sulphate as the most effective of the salts of Iron; an opinion very generally entertained. It may be given in the form of pill, with the Extract of Gentian; with a sedative, as Conium; or with an aperient, as Pil. Rhei Co. or Pil. Aloes. It may also be given in solution, with a little Sulphuric Acid, which adds to its efficacy and assists to keep it in solution. It may thus, adds Dr. Turnbull, be given in combination with several other medicines required in Anæmia; and from this circumstance I have used it more frequently than any of the other preparations of Iron, and I have found it also one of the most efficacious." He speaks favourably of the following formula:—℞ Ferri Sulph., Ext. Aloes, Ext. Hyoscyam. ää ℈j., M. et divid. in pil. xij. sumat. j. ter in die. Dr. Ashwell‡ advises it in combination with Hops, thus:—℞ Ferri Sulph. gr. j.—ij., Ext. Humuli gr. ij.—iij., ft. pil. ter in die sumend.

1242. *In Palpitations in Anæmic states*, Dr. Abercrombie pro-

* Garrod, Essentials of Mat. Med., p. 73.

† Lectures on Plethora and Anæmia, Lancet, April 18, 1846.

‡ Diseases Peculiar to Women, op. cit.

posed the following pills, which Dr. Hope* says he has employed in a great number of cases, and that he has been seldom disappointed in their operation :—℞ Ferri Sulph., Aloes āā gr. ij., Pulv. Cinnam. gr. v., M. ft. pil. ij. These are to be taken at dinner-time, and repeated at night if necessary.

1243. *In Chlorosis*, the Sulphate of Iron is the most efficacious of all remedies (see *ante*). Dr. Marshall Hall† recommends a pill composed of equal parts (gr. ij.) of the Sulphate of Iron and Aloes, to be taken daily, at dinner-time. He adds that, according to his experience, it is almost a specific. The bowels should be kept freely open with Ol. Ricini. *In Amenorrhœa*, it is also a remedy of great efficacy. It may be given as above, or in the form of Mist. Ferri Co.

1244. *In Leucorrhœa*, Dr. Churchill‡ advises the Sulphate, combined with Pil. Hydrarg. or Pil. Rhei Co. Under its continued use, the digestive organs and general health improved, and the discharge diminished. A blister to the sacrum aids other treatment.

1245. *In Cancer of the Uterus*, Dr. Ashwell§ states that a solution of the Sulphate of Iron (ʒj.—ʒiss. ad Aq. Oj.) often proves beneficial in diminishing the quantity, odour, and acrimony of the discharge.

1246. *In Prolapsus of the Rectum*, the daily use of an injection of the Sulphate (gr. j.—ij. ad Aq. fʒj.), is highly spoken of by Mr. Vincent.‖ He states that perseverance in its use for a week or two often obviates the necessity of an operation.

1247. *In Piles attended with much Hæmorrhage*, and where the parts are not much inflamed, a solution (gr. ij.—Aq. fl. oz. j.) of the Sulphate daily injected is of great service.

1248. *In Cardialgia, Gastrodynia, and in Ulceration of the Stomach*, the following formula of Dr. Abercrombie has been found very effectual :—℞ Ferri Sulph. gr. ij., Aloes gr. j.—ij., Pulv. Cinnam. gr. v., M. ft. pil. ij. ter in die sumend. The bowels should be carefully regulated at the same time.

1249. *In Enlargements of the Spleen*, the Sulphate of Iron is a remedy of great value. Cruveilhier¶ regards the salts of Iron as a specific in *Hypertrophy of the Spleen*, or in *Chronic Splenitis*, and he states that, by their aid, he has obtained complete resolution of enlargements of the spleen, which have occupied half or even two-thirds of the abdomen. The Sulphate may be given in doses of gr. vj.—x. daily, in combination with purgatives. It is the base of Shoolbred's Powder,** which, for forty years, main-

* Cyc. Pract. Med., vol. iii. p. 237.
† Ibid., vol. i. p. 379.
‡ On Diseases of Females, p. 135.
§ Op. cit.
‖ Edin. Med. Surg. Journ., Jan. 1849.
¶ Dict. de Méd. et de Chir., t. viii. p. 62.
** Johnson on Tropical Climates, p. 298.

tained a high character in India in these affections :—℞ Pulv. Jalapæ, P. Rhei, P. Columbæ, Potas. Bitart. āā ʒj., Ferri Sulph. ʒss., M. ft. pulv. Dose, sufficient to open the bowels, three or four times daily. I have seen the best effects follow a somewhat similar formula.

1250. *In Intermittent Fevers*, the Sulphate of Iron was first employed by Dr. Marc,* in 1808; and so great was the success which attended its use, that M. Corvisart was appointed to inquire into the practice. His report was most favourable; but, from some unexplained cause, it fell into disuse. I have employed it in between 100 and 200 cases of ordinary Intermittents, Quotidian, Tertian, and Quartan, such as occur in the Tenasserim Provinces; and, in upwards of two-thirds of the cases treated by it, a speedy and complete cure resulted. It also proved successful in some cases, where Quinine had previously failed. The dose employed varied from gr. viij. to x. daily, in divided doses, given during the intermissions. It has been usually exhibited in the form of pill, with gr. j.—ij. of Ext. Hyoscyami; or in solution, with Infus. Quassiæ. It proved most successful in anæmic subjects, and in those with evident enlargement of the spleen. A low dict is necessary; the bowels should be carefully regulated, and all acids and acidulous fruits avoided. The last point requires to be strictly attended to. It is a remedy of great power in these cases, and merits a further trial. It is inadmissible if much gastric irritability be present, or where the patient is stout and plethoric, with a determination of blood to the head. In obstinate cases the quantity may be increased to gr. xx. daily, in divided doses.

1251. *In Intermittent Hemicrania*, the internal use of the Sulphate in doses of gr. viij.—x. daily, either alone or in combination with Ext. Hyoscyami, is occasionally sufficient to effect a cure. In one very obstinate case, when Quinine failed, it afforded immediate relief, in my practice.

1252. *In Hypochondriasis*, the Sulphate of Iron is very efficacious. It may be combined with Gentian, Quinine, or Henbane, and a steady perseverance in its use has been found attended with the best effects. It is inadmissible in highly irritable states of the intestinal canal.

1253. *In Hysteria connected with debility*, the Sulphate, in doses of gr. ij. night and morning, has been found highly beneficial. Dr. Laycock† advises the following pills :—℞ Ferri Sulph. gr. xv., Pulv. Colocynth. gr. ij., Pil. Hyd. gr. xij., Ext. Colchici Acet. gr. ix., Ext. Gent. gr. xxx., M. ft. pil. xij. sumat. j. ter in die.

* See Sedillot's Journ. Gén. de Médecine, t. xxxiv. and xxxix., and Medico-Chir. Rev., Oct. 1833.

† On Hysteria.

1254. *In Phthisis*, this salt is highly spoken of by Dr. Elliotson,* who states, that in doses of gr. ij.—iij. two or three times a-day, it has apparently checked incipient cases, and greatly modified all the symptoms. If it purges, the Carbonate may be substituted.

1255. *In Erysipelas*, Velpeau† employed the Sulphate in solution (ʒj. ad Aq. Oj.), as an external application, in forty cases. In every instance, the active symptoms were subdued in from twenty-four to forty-eight hours. Erratic Erysipelas, however, often resisted its action. He also employed an ointment (ʒij., Lard ʒj.), but it was not so efficacious as the solution.

1256. *To Chancres, and Venereal Ulcers*, the Sulphate, very finely powdered and sprinkled over the surface, has been highly spoken of, as a means of destroying the syphilitic character of the ulceration, and of establishing a healthy surface.

1257. *Against Worms*, it was employed in the time of Pliny,‡ who speaks highly of its anthelmintic power; and Boerhaave employed it with great success. He dissolved gr. lx. in Oj. of water, and gave it in divided doses, during the day.

1258. *In the Chronic stages of Hooping Cough*, or when the disease was of a purely nervous character, Dr. Stanger§ found the Sulphate very effectual.

1259. *In Neuralgia*, Dr. Copland‖ speaks favourably of this salt, and advises its combination with Cinchona, Quinine, and other medicines.

1260. FERRI SULPHURETUM. Sulphuret of Iron. Sulphide of Iron. (FeS): is of little therapeutic value. It is used—1, *in cutaneous affections of a scrofulous character;* 2, *as an antidote in poisoning by corrosive sublimate;* 3, *in the preparation of Sulphuretted Hydrogen.*

Dose, gr. iv.—x. in pill or syrup.

1261. FERRI SULPHURETUM HYDRATUM. Hydrated Protosulphuret of Iron: is stated by Orfila to be an efficacious antidote in *poisoning by corrosive sublimate;* but to have any effect it should be taken immediately after the poison has been swallowed. It is also stated to be an antidote *in poisoning by the Salts of Tin, Antimony, Silver, and Arsenic.*

1262. FERRI TANNAS. Tannate of Iron. A combination of Tannic Acid 90 parts, and Peroxide of Iron 400 parts.

Dose, gr. x.—gr. xxx.

In Chlorosis, it has been particularly recommended by Dr. Beredetti,¶ who considers it the most efficacious of all the

* Lectures, p. 760.
† Ann de la Chirurg., Feb. 1842.
‡ Nat. Hist., lib. xxxiv. cap. xii.
§ Med.-Chir. Trans., vol. i. p. 5.
‖ Dict. Pract. Med., vol. ii. p. 892.
¶ Bull. del Scienz. Med., 1847.

salts of Iron, and quotes numerous cases in support of his assertion.

1263. FERRUM TARTARATUM. Tartarated Iron. Ferri Potassio-Tartras. The Potassio-Tartrate of Iron (Ph. Lond.). Ferrum Tartarizatum. Tartarized Iron, called also Potassæ Ferrico-Tartras. Tartrate of Iron and Potash (Fe_2O_3, KO, $C_8H_4O_{10}$ + HO).

Med. Prop. and Action. Tonic and diuretic, anthelmintic in large doses. It is a mild and efficient salt with a very slight taste, and is well adapted for children. It may be prescribed with Alkalies.

Offic. Prep. Vinum Ferri. (See FERRI VINUM.)

Dose, as a tonic and diuretic, gr. v.—gr. xx.; as an anthelmintic, gr. xxx. —gr. lx. thrice daily.

1264. *Therapeutic Uses. In Dropsy and Anasarca*, Dr. Darwell* states that he found this salt very efficacious, acting at the same time as a tonic and diuretic. It affords a great amount of relief, he adds, in those cases of Anarsarca which are connected with disturbed action of the heart, and in which it would be dangerous to give any stimulating tonic.

1265. *Against Worms*, Dr. Thompson† found Tartarized Iron act particularly favourably, as a corroborant anthelmintic, in women and children. He directs the bowels to be first cleared out with Calomel and Scammony, and then administers the salt, in doses of ʒss.—ʒj., in solution, thrice daily. He states that he found this treatment very effectual.

1266. *In Phagedenic Chancres*, Mr. Acton‡ relies on this salt, given internally in moderate and increasing doses. A solution is also applied to the sore. This treatment was first proposed by Ricord.

1267. *In Phthisis* it is recommended by Mr. J. K. Spender,§ on the ground that it may be prescribed with alkalies, which are indicated by undue acidity of the stomach, the common concomitant of pulmonary consumption.

1268. FERRI VALERIANAS. Valerianate of Iron. One eq. of Peroxide of Iron united to 3 eq. of Valerianic Acid. (Fe_2O_3, 3 $C_{10}H_9O_3$.) Insoluble in cold, decomposed by hot water; soluble in alcohol.‖

Med. Prop. and Action. Tonic and anti-spasmodic. Given in *Hysteria* and *Chlorosis*. It is not much used on account of its disagreeable odour and proneness to decomposition.

Dose, gr. ½—gr. j. in pill, with powdered liquorice and mucilage.

* Cyc. Pract. Med., vol. i. p. 100.
† Ibid., vol. i. p. 165.
‡ Diseases of the Urinary and Gen. Organs, p. 410, 1851 (R).
§ Med. Times and Gaz., Feb. 6, 1864.
‖ Draper, Manual of Iron Preparations, p. 94.

1269. FERRI VINUM. Wine of Iron. PHARM. BRIT. *Prep.* Tartarated Iron grs. clx. dissolved in Sherry Oj.

FERRI VINUM. Wine of Iron. Steel Wine. PHARM. LOND. A solution of Iron Wire ʒj. in Sherry Oij. The iron becomes oxidized, and combines with the acids (malic, tartaric, and acetic (?)) contained in the wine.

Of the Vinum Ferri, Pharm. Brit. Mr. Squire* observes:—"The Tartarated Iron dissolves with difficulty in Sherry which is already saturated with Bitartrate of Potash; indeed it will not all dissolve. This preparation is not nearly so satisfactory as that of the Lond. made with Sherry and Iron Wire, and far inferior to the *old Steel Wine* made with Malaga and Iron Wire."

Med. Prop. and Action. These preparations are very useful, mild chalybeates. They are particularly adapted for children, and for those whose stomachs are irritable.

Dose of Vinum Ferri (Ph. Brit.), fl. drm. j. and upwards for children, fl. drs. iv. and upwards for adults; of Vinum Ferri (Ph. Lond.), fl. drm. j.—fl. drs. iv.

Therapeutic Uses. Similar to those of Tartarated Iron.

1270. *In Chlorosis, Anæmia, &c.*, occurring in young women of relaxed leucophlegmatic habits, Steel Wine (Ph. Lond.) is a popular remedy, and one which is occasionally productive of much benefit. Pil. Aloes c. Myrrh. may advantageously be given at the same time, and generous living and outdoor exercise enjoined. *In Atonic Dysmenorrhœa*, the following formula, advised by Dr. Locock,† is productive of great benefit; I have often employed it with manifest advantage:—℞ Vin. Ferri (Ph. Lond.), Spt. Ether. S. C. āā fʒj., Mist. Camph. fʒvj., sumat. ¼ part. 6tis horis. *In Phthisis*, Steel Wine (Pharm. Lond.) is favourably spoken of by Dr. Cotton;‡ he found it produce very good results, especially in children and young persons. He places much faith in its use, particularly when given with or immediately after meals.

1271. FICUS CARICA. The Common Fig. *Nat. Ord.* Urticaceæ. *Linn. Syst.* Polygamia Diœcia. *Hab.* Asia and Europe. The dried fruit is imported from Smyrna.

Med. Prop. and Action. The dried fruit is gently laxative, but sometimes produces griping and flatulence. In the form of decoction (strained) it is demulcent.

Offic. Prep. Confectio Sennæ. (See Senna.)

1272. *Therapeutic Uses. In Pulmonary, Nephritic, and Calculous Affections*, a decoction of Figs is a useful demulcent.

1273. *In Habitual Constipation*, dried Figs prove useful; they form an important article in Confect. Sennæ.

* Companion to the Pharmacopœia, p. 88.

† Cyc. Pract. Med., vol. i. p. 663.

‡ Lancet, Oct. 25, 1862.

1274. *To Abscesses and Boils*, Figs, boiled and split open, are occasionally used as cataplasms. The most ancient poultice on record is directed to be made of Figs.*

1275. *In Cynanche Tonsillaris*, when suppuration has taken place, ʒij. of Figs boiled in f℥vj. of water, and strained, forms a useful gargle. (A. T. Thompson.)

1276. FILIX. Fern Root. The dried Rhizome of Aspidium (Nephrodium). Filix mas. *Nat. Ord.* Filices. *Linn. Syst.* Cryptogamia Filices. *Hab.* Europe and many parts of Asia and America. It should be collected in summer.

Med. Prop. and Action. Anthelmintic. It contains *a volatile oil, a resin,* and *a fixed oil.* The Ethereal Extract (Extractum Filicis Liquidum) is commonly known as the *Oil of Male Fern* (Oleum Filicis Maris). It contains the volatile and fixed oil, and resin in solution. Male Fern appears to act specifically on the worms, as they are mostly discharged dead, after the medicine has been taken, as directed below. Mr. Squire† states that an extract of the unexpanded frond is equally effective with that of the rhizome.

Offic. Prep. Extractum Filicis Liquidum. (Fern Root in coarse powder lb. ij.; Ether Oiv., or a sufficiency. Prepared by percolation and subsequent evaporation or distillation of the Ether.) Dose, ℥xxx.—fl. drs. ij.

Dose of Powdered Rhizome, gr. lx.—gr. clxxx.

1277. *Therapeutic Uses.* Against *Tape Worm*, the rhizome of the Aspidium was employed by the ancients; but it fell into disuse until about the middle of the eighteenth century, when Madame Nouffler obtained great celebrity by her nostrum, the base of which was found to be the rhizome of this fern. After the employment of an enema, she directed ʒiij. of the powdered root to be given, and two hours after, a bolus containing Calomel gr. xij., Pulv. Scammon. gr. xij., and Gamboge gr. v. The practice was doubtless very efficacious. Male Fern is said to be more useful against the *Bothriocephalus latus* than against the *Tænia solium.*‡ It is generally administered in the form of the liquid extract (Oil of Male Fern). Of this fl. drm. j. should be taken in the morning fasting, and should be followed by a dose of Castor Oil. It is one of the most effectual remedies we possess. The dry ethereal extract was employed by Brera and Ebers in doses of gr. xij.—gr. xxiv. at night, and repeated in the morning. In whatever form it is prescribed, it should be followed by a mild purgative. The worms are generally discharged dead. It has been successfully employed by Christison, Martin Solon,§ Dr. Budd,‖ Mr. Pollard,¶ Dr. Gull,** Dr. Peacock,†† &c. The

* 2 Kings, chap. xx. v. 7.
† Companion to the Pharmacopœia, p. 89.
‡ Garrod, Essentials of Mat. Med. and Therap., p. 317.
§ Bull. Gén. de Thérap., 1850.
‖ Lancet, Dec. 21, 1850.
¶ Ibid., Dec. 7, 1850.
** Guy's Hospital Reports, 1855.
†† Med. Times and Gaz., Nov. 6, 1858.

last named gentleman prefers the Oil to all other tænicides. Dr. Fleming* considers that the Oil should be given fasting in a draught of milk, the favourite food of the parasite.

1278. Fœniculum Vulgare. Common Fennel. *Nat. Ord.* Umbelliferæ. *Linn. Syst.* Pentandria Digynia.

Fœniculum Dulce. Sweet Fennel. *Hab. of both plants*, Europe. Sweet Fennel Fruit is imported from Malta.

Med. Prop. and Action. The fruit or seed dried is stimulant, carminative. The distilled water or essential oil has been used in *Flatulence, Colic, Dyspepsia*, &c., but is now rarely employed, and is of inferior value to Caraway or Aniseed. The ancients ascribed lactagogue properties to Fennel seeds (F. Vulgare), and that they really possess this property is established by the researches of Dr. Routh;† he states that it is remarkable how materially it *increases the flow of milk*. In some respects it has advantages over Castor Oil leaves, to which Dr. Routh assigns the first place. Cazin‡ also bears testimony to its value; especially where the deficiency of milk is connected with Atony of the Stomach and Gastralgia.

Offic. Prep. Aqua Fœniculi (Bruised Sweet Fennel Fruit oz. xx.; Water Cij.; distil Cj.). Dose, fl. oz. j.—fl. oz. ij.

Dose of Oleum Fœniculi, ♏ij.—♏v.

1279. Frasera Walteri. F. Caroliensis. Swertia Difformis. American Calumba. *Nat. Ord.* Gentianaceæ. *Hab.* North America.

Med. Prop. and Action. The root (*off.* U. S. Ph.) is a mild tonic, and bitter, and when cut into slices, closely resembles the true Calumba. From this it may be distinguished by adding Iodine to an aqueous infusion; if it be the true Calumba the infusion turns blue, in consequence of the presence of starch; but no such change takes place with the Frasera. Bigelow§ says that it has considerable tonic powers, and that, when fresh, it is emetic and cathartic.

Therapeutic Uses. The same as those of Gentian and Calumba.

1280. Fraxinus Excelsior. Common Ash. *Nat. Ord.* Oleaceæ.

Med. Prop. and Action. The leaves of the Common Ash have lately attracted attention in Germany and France as a remedy for *Gout* and *Rheumatism*. Dr. Garrod,‖ who was the first to test their properties in England, states that he is not at all inclined to think highly of their value in Acute Gout, for in several cases they failed to afford the slightest alleviation, when the use of other treatment was immediately followed by relief. In the treatment of Chronic Gout, when taken for a long time, and in large quantities in the form of decoction of the leaves (oz. ss. to Oj.), he thinks they may probably have some influence in keeping off attacks.

Fraxinus Ornus. See Manna.

* Med. Times and Gaz., Nov. 16, 1861.
† Med. Times, June 4, 1856, p. 575.
‡ Plant. Méd. Indig., p. 403.
§ Mat. Med.
‖ Essentials of Mat. Med. and Therap., p. 247.

1281. Fucus Vesiculosus. Sea Wrack. *Nat. Ord.* Algæ. When incinerated, was formerly known as Vegetable Ethiops.

Med. Prop. and Action. Alterative and deobstruent; particularly recommended externally and internally, in *Scrofulous Affections*, by Dr. R. Russel.* He states that he has substituted it for burnt sponge, and he thinks that "it far exceeds it in virtue." Any benefit which is derived from it is doubtless due to the small portion of Iodine which forms one of its constituents. As a remedy for *Obesity*, the Decoction, or which is preferable, the Extract of this Alga (in doses of grs. xl.—lxxx. daily, in divided doses) has been highly praised by Dr. Duchesne-Duparc,† and its efficacy has been confirmed in his own person by Dr. Godefroy‡: in a period of thirty-four days, under the use of the Extract in doses of grs. ivss., thrice daily, taken at the commencement of each meal, he lost nearly 3¼ lbs. in weight. Beyond its effect on the urine, which was rendered more abundant, high coloured, and odorous than before, he observed no physiological effect.

Dose, from gr. x.—gr. cxx. of the burnt Sea Wrack.

1282. Galbanum. The Gum Resin of an unascertained Umbelliferous plant, Galbanum Officinale (?), *Don.*; Opoidia Galbanifera (?), *Lindley*. *Source*, India and the Levant.

Med. Prop. and Action. Stimulant, anti-spasmodic, and expectorant. The Compound Galbanum Pill (Pharm. Lond.) (Galbanum ℥ij., Myrrh, Sagapenum ää ℥iij., Assafœtida ℥j., Soft Soap ℥ij., Syr. q. s.), in doses of gr. x.—gr. xx., is a good form for internal use. As an anti-spasmodic, it is inferior to Assafœtida, and may be ranked between it and Ammoniacum. It is regarded as emmenagogue, and may be advantageously combined with the salts of Iron, in the treatment of *Amenorrhœa*. Externally applied in the form of plaster, it is discutient and stimulant.

Offic Prep. 1. Emplastrum Galbani (Galbanum oz. j.; Ammoniac oz. j.; Yellow Wax oz. j.; Litharge Plaster oz. viij.).

2. Pilula Assafœtidæ Composita. (See Assafœtida.)

Dose of Galbanum, gr. x.—gr. xx. in pill or emulsion.

1283. *Therapeutic Uses.* *In Hysteria*, Galbanum is often very beneficial. It is generally inferior in efficacy to Assafœtida; but in some instances it agrees better, and produces an equal amount of benefit. The Emp. Galban. applied over the sacrum is a measure which frequently affords relief. It is particularly useful in hysteria connected with disordered uterine action.

1284. *In Flatulence and Flatulent Colic*, particularly when occurring in hysterical females, much benefit accrues from the use of Pil. Galb. Co. (gr. v.—x.), in combination with Pil. Rhei Co. and a small portion of Henbane.

1285. *In Asthma*, Galbanum is occasionally useful, in consequence of its expectorant properties; but it is inferior in efficacy to Ammoniacum. It is also serviceable in *Chronic Catarrhs*.

1286. *Neuralgia dependent upon Uterine derangement* has, according to the experience of Mr. Cussack,§ often yielded to

* Dissertation on Sea Water, 3rd Ed., p. 132-7.

† Med. Times, April 10, 1862.

‡ Rev. de Thérap., Sept. 1862.

§ Dublin Journ., vol. v. p. 22.

the following formula:—℞ Pil. Galb. Co. gr. iij.—vij., Pil. Hydrarg. gr. iij., M. ft. pil. alternis noct. sumend.

1287. *In Atonic Dyspepsia*, Galbanum, given in the form mentioned under the head of Flatulence (*supra*), has an excellent effect.

1288. *To Indolent Tumours of a non-malignant character*, the Emp. Galban. is sometimes applied, with the effect of diminishing their size, or altogether causing their absorption.

GALIPEA. See CUSPARIA.

1289. GALIUM ALBUM. Lady's Bed Straw. Wild Rosemary. *Nat. Ord.* Rubiaceæ. *Linn. Syst.* Tetrandia Monogynia. *Hab.* England and other parts of Europe.

This plant has recently obtained some repute as an anti-spasmodic. it being the medicinal basis of the treatment for *Epilepsy* pursued with great alleged success by a M. Larnage in the neighbourhood of Tain, in France. At the commencement fl. oz. iv. or fl. oz. v. of the expressed juice is given after the patient has been fasting for some hours, and the action on the system so obtained is kept up by lozenges prepared from the juice. A rigid regimen, baths, exercise, and mental quietude are enforced. From the statements of M. Garnier, however, the alleged cures are a delusion and a snare, though a good deal of money is made by the sale of the lozenges! The value of the remedy may be judged by the fact that it was *officially* tried at the Bicêtre, near Paris, upon eight picked cases, and signally failed (Ranking). Those who wish to know more on this treatment may consult the long and interesting paper of Dr. Ogle, in the *Lancet* for May 1862.

1290. GALLA. Galls. Excrescences or tumours caused by the punctures and deposited ova of a hymenopterous insect (Diplolepis Gallæ Tinctoriæ) on the twigs of Quercus Infectoria, the Gall Oak. *Nat. Ord.* Cupuliferæ. *Linn. Syst.* Monœcia Polyandria. *Source*, Asia Minor and Persia.

Med. Prop. and Action. Astringent. Their astringency depends upon the presence of Tannic and Gallic acids; of the former they contain 35, of the latter 5 per cent. They have, for many centuries, been held in high esteem in the East, in dysentery and ague. They are used as an antidote in *poisoning by Ipecacuanha, Emetine, the alkaloids generally*, and those vegetable productions whose activity depends upon an alkaloid, as *Opium, Aconite*, &c. They are also said to be an antidote in *poisoning by Tartar Emetic*, but this appears doubtful. (Pereira) They may be given in infusion (oz. ss., Aq. Ferv. fl. oz. vj.). Externally they are used in the form of ointment.

Offic. Prep. 1. Gallic Acid. (See Gallic Acid.)

2. Tannic Acid. (See Tannic Acid.)

3. Tinctura Gallæ (Bruised Galls oz. iiss.; Proof Spirit Oj. Prepared by maceration and percolation). Dose, ℥xxx.—fl. drs. iss. Seldom used except as a test.

4. Unguentum Gallæ (Powdered Galls grs. lxxx.; Simple Ointment oz. j.).

5. Unguentum Gallæ cum Opio (Ointment of Galls oz. j.; Powdered Opium grs. xxxij.).

Dose of Powdered Galls, gr. x.—xx., three or four times daily.

Incompatible with the Infusion. Alkaline solutions; most metallic salts; solutions containing Gelatine; decoction of Yellow Bark.

1291. *Therapeutic Uses. In Diarrhœa* unattended by inflammation, Galls may occasionally be given with advantage. Prof. Royle* states that he has frequently given powdered Galls, in doses of gr. x.—xx., several times a day, in the obstinate diarrhœas of the natives of India.

1292. *In the later stages of Dysentery*, Dr. Roots† states that he has given the infusion of Galls, in combination with Opium, with the most marked benefit. Its nauseous taste is a great objection to its use.

1293. *In Leucorrhœa*, Mr. Walker, of the Lock Hospital, found great benefit from Pulv. Gallæ, in doses of gr. x.—xx., in decoction of Tormentilla daily. *In Chronic Gonorrhœa and Gleet*, the internal use of Galls (gr. xx.—gr. xxx. daily) has often a marked effect in checking the discharge.

1294. *In Atonic Menorrhagia*, an infusion of Galls, daily injected into the vagina, warm or cold, according to the feelings of the patient, is occasionally of great service.

1295. *In Prolapsus Uteri vel Recti*, the daily use of an enema of infusion of Galls proves serviceable in astringing the parts.

1296. *In Hæmorrhoids*, one of the most popular and efficacious external applications is Ung. Gallæ, to which a portion of finely-powdered Opium should be added. The Confect. Pip. Nig. may be advantageously given internally, at the same time.

1297. *In Intermittent Fevers*, Galls are a popular Hindoo remedy. They were favourably spoken of by Poupart, but experience has proved them to have very slight febrifuge power.

1298. *In Relaxation of the Uvula, and Hypertrophy of the Tonsils*, an efficient astringent gargle is composed of gr. lx. of Alum in fl. oz. vj. of Infusion of Galls.

1299. GALLIC ACID. Acidum Gallicum. Prepared chiefly from Oak Galls. $3\,HO,C_{14}H_3O_7 + 2\,HO$.

Med. Prop. and Action. Powerful astringent. It is best given suspended in mucilage, or with some confection in the form of pills. About gr. iv. of Gallic Acid can be suspended in fl. oz. j. of Water (Garrod). It has a tendency to produce constipation, which may be obviated by an occasional aperient. It produces no sensible effect on the system, even in considerable doses. Its properties are very similar to those of Tannic Acid, but it is weaker, probably from its inferior solubility. Dr. Garrod, however, considers that, as a remote astringent, it is more effectual than an equal quantity of Tannic Acid, for the latter becomes converted in the blood into Gallic Acid and grape sugar, and hence part only is available. It is said to be the active ingredient in Ruspini's styptic.

Dose, gr. iij.—gr. xx.

Contra-indications. Acute inflammatory states.

1300. *Therapeutic Uses. In Hæmorrhagic Diseases*, Gallic

* Mat. Med., p. 579. † Med.-Chir. Rev., July 1846.

Acid is a valuable remedy. Dr. Todd* observes, "In all cases of hæmorrhages, whether *Hæmoptysis*, *Hæmatemesis*, *Hæmaturia*, or other forms depending upon the hæmorrhagic tendency, I have used Gallic Acid with the greatest advantage, and am inclined to look upon it as the best styptic we possess." It is also highly spoken of by Dr. Garrod, in this class of diseases. He observes, that it does not undergo changes in the system, like Tannin; and that it possesses the advantage over the latter, in not so frequently producing constipation. It is only applicable in atonic cases, or where inflammatory symptoms have been subdued. Its efficacy is now generally admitted. Dose, gr. v. or x. three or four times daily. *In Hæmoptysis*, Dr. C. J. B. Williams† speaks highly of Gallic Acid in doses of gr. x., and he considers that its efficacy is increased by combining it with a derivative, or, as occasion may require, with Opium, Digitalis, or Tartar Emetic. Dr. L. Earle considers that the anti-hæmorrhagic powers of Gallic Acid are greatly increased by its being conjoined with Sulphuric Acid, *e. g.* ℞ Acid. Gallic. ʒss., Acid. Sulph. Dil. fʒj., Liq. Opii Sed. fʒss., Infus. Rosæ Co. fʒvj., M., cap. coch. mag. ij., 3 vel 4 quâque horâ.

1301. *In Menorrhagia*, it has been found also eminently beneficial; severe cases successfully treated by it are recorded by Dr. Stevenson,‡ Dr. Simpson,§ and others. The latter gave it to the extent of 10, 15, or 20 grains daily; and continued its use during the intervals, as well as at the period of the discharge. Drs. Ballard and Garrod‖ state, that in the treatment of *Menorrhagia and Leucorrhœa*, no astringent which they have employed will bear any comparison with Gallic Acid, either for the rapidity with which the cure is effected, or in the permanency of the result. In Leucorrhœa they employed it in injection, with evident advantage.

1302. *In the profuse Perspirations of Phthisis*, it has been used successfully by Drs. Ballard and Garrod.¶ They state, that although, like other medicines, Gallic Acid fails sometimes in arresting these discharges, they have more reason to be satisfied with it than with any other remedy which they had formerly been in the habit of using. *The excessive expectorations of Phthisis and Bronchitis* are also much influenced by its administration. Dose, gr. ij.—v. every three or four hours.

1303. *Albuminuria.* Mr. Sampson** relates four cases in which the albuminous character of the urine was restored to a healthy standard by Gallic Acid, in doses of gr. x., thrice daily, or

* Clin. Lect., Jan. 19, 1849.
† Lancet, April 19, 1851.
‡ Edin. Med. Surg. Journ., July 1843.
§ Lond. Monthly Journ., July 1843.
‖ Mat. Med., p. 416.
¶ Op. cit.
** Lancet, Dec. 1, 1849.

oftener. He considers that smaller quantities would have proved insufficient.

1304. *In Dyspepsia* arising from a relaxed condition of the mucous membrane of the stomach, Mr. Sampson* derived great advantage from Gallic Acid. Excepting in one case, he never saw it produce headache, nor indeed any disagreeable effect. Where the bronchial membrane is extremely irritable, it may cause oppression of the chest. In *Pyrosis*, unaccompanied by extensive ulceration or malignant disease of the stomach or by disease of the liver, the most marked benefit, according to Dr. Bayes,† will follow the use of Gallic Acid.

1305. *In Gonorrhœa*, it was employed by Mr. Sampson,‡ in a case of eight days' standing. The patient took ʒj. in twenty-four hours, in doses of gr. xij.; and in four days, the discharge changed from a thick consistence and yellow colour, to the smallest quantity of colourless gleet. We should expect much benefit from it in *Chronic cases and in Gleet.*

GAMBOGIA. See CAMBOGIA.

1306. GENTIANA. Gentianæ Radix. The root of Gentiana Lutea. *Nat. Ord.* Gentianaceæ. *Linn. Syst.* Pentandria Digynia. *Source*, The Alps, Apennines, and other mountainous districts of Europe.

Med. Prop. and Action. A pure, bitter tonic. It is best given in infusion, tincture, or extract. Its activity depends upon a bitter principle, *Gentianite.* It also contains a crystallizable principle, *Gentianin.* Gentian acts without causing astringency (indeed, it has occasionally a laxative effect); neither is it a stimulant; but, taken in moderate doses, it increases the tone of the digestion, improves the appetite, and strengthens the constitution. By long-continued use, it is said to communicate a bitter taste to the urine, and cutaneous secretion. It has been asserted that it exercises a specific influence on the cerebro-spinal system, occasionally producing poisonous effects; but I have given it largely, in a great number of cases, for several years, and have never observed any ill effects result even from its long-continued use. It has been reputed vermifuge. Dr. Aveling§ has proposed the use of Gentian Root in the manufacture of tents, in treating *partial occlusion of the Cervix Uteri.* He speaks of them as cheap, simple, and efficacious.

Offic. Prep. 1. Extractum Gentianæ (Sliced Gentian lb. j.; Boiling Distilled Water Cj. Prepared by maceration, subsequent boiling, and evaporation). Dose, gr. v.—gr. x.

2. Infusum Gentianæ Compositum (Sliced Gentian oz. ½; Bruised Bitter Orange Peel grs. xxx.; Coriander grs. xxx.; Proof Spirit fl. oz. ij.; Cold Distilled Water fl. oz. viij. Prepared by maceration for two hours in the Spirit, and then in the Spirit and Water for two hours more). Dose, fl. oz. ss. —fl. oz. j. This is the same as the Infusion of the Edin. Pharm.

3. Tinctura Gentianæ Composita (Bruised Gentian oz. iss.; Bitter Orange Peel cut small and bruised oz. ¾; Cardamoms bruised oz. ½; Proof Spirit Oj. Prepared by maceration and percolation). Dose, fl. drm. j.—fl. drs. ij.

* Op. cit.

† Association Med. Journ., June 23, 1854.

‡ Op. cit.

§ Med. Times, June 26, 1858.

Infusum Gentianæ Compositum (Pharm. Lond.). Sliced Gentian, Dried Orange Peel āā ʒij. ; Lemon Peel ʒiv. ; Boiling Distilled Water Oj. Macerate for an hour in a covered vessel and strain. (Mr. Squire observes that this is superior to the preceding Compound Infusion of the Brit. Pharm. The latter partakes more of the character of a weak Tincture.) Dose, fʒj.—fʒij.

Dose of Powdered Gentian, gr. x.—gr. xxx.

It is contra-indicated in febrile disorders, and inflammatory conditions of the gastro intestinal membrane. (Pereira.)

1307. *Therapeutic Uses. In Debility, and Diseases accompanied by Debility*, Gentian is one of the most generally useful remedies in the Materia Medica. It may be advantageously combined with Spt. Ammon. Arom. or Ammon. Carb.

1308. *In Atonic Dyspepsia, and in the Dyspepsia of Gouty subjects*, the Tincture, given in some aromatic water, is very valuable as a stomachic and tonic. It may be advantageously combined with alkalies and sedatives.

1309. *In Intermittents*, it was favourably reported by Cullen.* He advises its being combined with equal parts of Galls and Tormentilla. It is now rarely employed. Dr. Chavasse,† of the French Navy, speaks highly of the powers of Gentian as a *prophylactic in the Malarious Fevers of Guiana*. He considers that it neutralizes the miasmatic poison, if taken before any pathological manifestation of marsh fever is developed. For this purpose he gives the Tincture in brandy twice daily. He remarks that the addition of the alcohol is important, for it excites the energies of the nervous system so as to make it accessible to the operation of the Gentian.

1310. *In Scrofula*, Richeraud‡ extols the following formula :— ℞ Infus. Gent. fʒvj., Sodæ Carb., Ammon. Carb. āā gr. xxxvj., M. Beyond improving the digestive system, it does not appear probable that it could in any way influence the disease. *For the Dyspepsia of Scrofulous subjects*, it is a good formula.

1311. GLONOIN. Nitro-Glycerin. A product obtained by treating Glycerin with equal parts of strong Nitric and Sulphuric Acids, successively added in small portions at a temperature kept below 32°. It is a yellowish oleaginous fluid, of a sweet, pungent taste, soluble in alcohol and ether, insoluble in water, slightly volatile and powerfully explosive. *Chem. Form.* $C_6H_5\,(2\,NO_4)\,O_6$.

Med. Prop. and Action. Attention was first called to this substance in 1858, by Mr. Field, who stated that in very small doses (one drop diluted with 100 of rectified spirit), he found it in his own person to produce very marked and peculiar effects. "As a direct sedative of the nervous system," he remarks, "without possessing any stimulating or permanently depressing qualities, without affecting secretion, together with its power of subduing muscular action, it appeared to become an invaluable agent in the treatment of a large

* Mat. Med., vol ii. p. 72.
† L'Union Méd , Jan. 21, 1860.
‡ Nosograph Chir., t. i. p. 184.

class of nervous and spasmodic diseases." He adds, that he has not met with one well-defined case of *neuralgic or spasmodic disease* in which it has failed to afford relief; and he suggests that with such a remedy we may look forward hopefully to the treatment of *Tetanus*, *Hydrophobia*, and allied affections. The subsequent trials with it by Drs. Fuller and Harley, while they show that Mr. Field had certainly overrated the powers of Glonoin, given in very small doses, leave little doubt that it is an agent of great power, capable in large doses of producing poisonous effects. Dr. J. B. Edwards* has shown that Glonoin has two distinct physiological actions, which are modified by the dose and the duration of its action. The primary effect of a small dose is that of a stimulant, which passes off in the course of half an hour; whilst in large doses (20 drops, administered to a full-grown rabbit), it induces a set of symptoms resembling, in a marked degree, those produced by strychnine,—tetanic convulsions, affecting violently the whole frame, contraction of the pupils, and exhaustion. It is evidently a remedy of great power, but its true therapeutic applications remain to be determined.

1312. GLYCERINUM. Glycerine. ($C_6H_8O_6$.) A sweet principle, obtained from fats and fixed oils, in which it exists in combination with Oleic, Margaric, and Stearic Acids, by saponification or distillation with superheated steam. It is a colourless, thick, oily fluid, without odour; freely soluble in water or alcohol. Sp. Gr. 1·26.

Med. Prop. and Action. Nutrient and emollient. It was originally discovered by Scheele, but was first introduced into practice by Mr. Startin,† of London, in 1845. He states, that the addition of from ¼ to ½, or even to $\frac{1}{16}$ part of Glycerine to any lotion, poultice, or external application, renders it particularly emollient and soothing: that it keeps the parts moistened and soft, and prevents the unpleasant odour of discharges. Its value as an external application depends chiefly on the fact that it does not evaporate or dry at an ordinary temperature. It possesses great powers as a solvent, and many solutions of medicinal substances are made with it: *e. g.*, The Salts of Morphia, Quinia, Strychnia, &c.

Dose, fl. drm. ss.—fl. drs. ij.

1313. *Therapeutic Uses. Skin Diseases.* Mr. Startin‡ advises the annexed formulæ, in the following affections of the skin and other tissues:—For *Superficial Burns*, *Scalds*, *Excoriations*, *Intertrigo*, *and Herpes Labiorum*, ℞ Gum. Trag. Pur. ʒij.—ʒss., Liq. Calcis fʒiv., Glycerini fʒj., Aq. Rosæ fʒiij., M., to form a soft jelly, to be used as ointment or embrocation. For *Chapped or Sore Nipples*, *Chapped Hands*, *Fissures of the Lips*, *and Pityriasis*, ℞ Sodæ Bibor. ʒss.—ʒj., Glycerini fʒss., Aq. Rosæ fʒviiss., M. For *Prurigo*, *Lichen*, *Strophulus*, *Lepra*, *and Psoriasis*, ℞ Acid. Nit. Dil. fʒss.—fʒj., Bismuth. Trisnit. ʒss., T. Digitalis fʒj., Glycerini fʒss., Aq. Rosæ fʒviiss., M.; to be applied to the affected parts frequently. For *Alopecia*, *Baldness*, *Dryness of the Scalp*, *and the Loss of Hair after debilitating diseases*, ℞ Spt. Ammon. Co. fʒj., Glycerini fʒss., T. Cantharidis fʒj.—fʒij., Aq. Rosmar. fʒviij., M. Mr. E. Wilson speaks favourably of it.

* Liverpool Med.-Chir. Journal, Jan. 1850.

† Med. Times, vol. xvi. p. 469.

‡ Op. cit., 1850.

1314. *In Rheumatism, Rheumatic Gout, Neuralgia, Sprains, and Bruises*, Mr. Startin advises the following liniment to be used twice daily:—℞ Lin. Sapon. f℥iss., Glycerini f℥ss., Ext. Belladon. ℥j., M.

1315. *In Phthisis*, Glycerine has been a good deal prescribed as a substitute for Cod Liver Oil, in cases where the latter nauseates. In some cases it has appeared to do good. It is frequently administered in combination with the Syrup of the Iodide of Iron. Dr. Cotton,* however, states that he gave it a fair trial in twenty-three cases. He administered f℥j., f℥ij., and even f℥iij., twice daily, and from this experience he draws the following conclusions:—1. That it has generally little influence in phthisical cases; and 2. That it will bear no comparison with Cod Liver Oil.

1316. *In Croup*, Dr. Mayer† speaks favourably of the value of Glycerine locally applied to the glottis, as an adjunct to other treatment. Under its use there was manifest mitigation of the symptoms.

1317. *In Deafness*, the local use of Glycerine has been strongly advocated by Dr. Turnbull‡ and Mr. T. Wakley.§ Mr. Wakley remarks, if the surface of the auditory canal be hard, shining, and inelastic; of a whitish appearance; if the natural secretion be wanting, and the membrana tympani be not painful to the touch, Glycerine may be employed with a tolerable certainty of success, even if a partial deafness has been of many years' duration. The meatus should be first well cleaned out, and the Glycerine either dropped into the passage, or introduced on a piece of cotton.

1318. GLYCYRRHIZA GLABRA. Liquorice Plant. *Nat. Ord.* Papilionaceæ. *Linn. Syst.* Diadelphia Decandria. *Hab.* Europe.

Med. Prop. and Action. The root or underground stem (*off.*) is demulcent, in the form of decoction (oz. iss. ad Aq. Oj.) or extract. It may be taken *ad libitum*. The Extract is of considerable use in disguising the taste of Aloes, Senna, and other nauseous medicines; and the powdered root is a common covering for pills. The root of the Abrus Precatorius (*Goonch; Hab.* India) is an excellent substitute for it.

Offic. Prep. Extractum Glycyrrhizæ. (Prepared by macerating powdered Liquorice-root in water for twelve hours, and percolation; then heating to 212°, and evaporating to a proper consistence.) Dose, gr. x.—gr. xxx.

1319. *Therapeutic Uses. In Catarrhal Affections of the Throat, and in Coughs*, the extract, allowed slowly to dissolve in the mouth, allays the irritation, diminishes the cough, and protects inflamed surfaces.

* Med. Times and Gaz., June 27, 1857.
† Amer. Journ. of Med. Sci., April 1858.
‡ Med. Gaz., June 1, 1849.
§ Lancet, Jan. 18, 1851.

1320. *In Strangury, Ardor Urinæ, and Diseases of the Bladder and Urinary Organs*, the decoction, combined with Pulv. Tragacanth. Co., forms an efficacious demulcent.

GRANATI RADIX. Pomegranate Root. See PUNICA GRANATUM.

1321. GUACO. A name applied in Central and South America to several plants, especially of *Nat. Ord.* Aristolochiaceæ, which are supposed to possess alexipharmic properties. The one, however, to which this name properly belongs, and to which the following remarks apply, is *Mikania Guaco*, H. et B., a plant, *Nat. Ord.* Asteraceæ, indigenous in intertropical America, and now naturalized in some parts of the West Indies. Dr. Hancock, however, refers it to a species of *Aristolochia*.

Med. Prop. and Action. The leaves have long been held in high repute amongst the natives of South America as *an antidote against the venom of serpents:* for this purpose the expressed juice of the leaves, or a strong infusion of them, is given internally, whilst the bruised leaves are applied to the wound. Mutis bears personal witness to it's powers in the bites of the most venomous snakes, and his testimony is supported by that of Bertrero. To be successful it should be employed in the fresh state; but even when dried, it is also considered to be a powerful febrifuge, and anthelmintic. (Griffith.) Setting aside the laudations at one time heaped upon Guaco, there is every reason to believe that it is a good tonic and stomachic, and a gentle stimulant of the secretions. Much of the power of the remedy is destroyed by drying. For internal use it may be given in Infusion (Dried Leaves ℥j., Aq. Ferv. Oj.), or Tincture (lb. ss. ad Spt. Vin. Rect. Css.).

1322 *Therapeutic Uses.* *In Cholera* it was proposed in 1832 as a certain remedy by Dr. Chabert, a French physician settled in Mexico. It obtained considerable repute, and was fairly tried by Dr. Pereira* in the cholera epidemic at Bourdeaux in 1832; and the results were, on the whole, satisfactory, only three out of eleven cases treated with it proving fatal. It failed, however, subsequently in the hands of Duges and Dubreuil.† The treatment consisted in administering a small teacupful of the warm decoction every half-hour until diaphoresis and warmth of surface were induced: this state was kept up for some days, when the remedy was gradually discontinued. In dangerous cases a dose of the Tincture was given alternately with a cupful of the Infusion.

1323. *In Gout*, Dr. E. Pritchard‡ found good effects follow the employment of the Tincture in doses of f℥ss.—f℥j., largely diluted, taken every four hours. The Tincture was at the same time applied locally. Dr. Duvon, of Guayaquil, found it exceedingly useful in *Chronic Rheumatism and Sciatica*, and

* Pamphlet, Bourdeaux, 1832, 4to. Sept. 1, 1835.
† Mém. de l'Acad. Roy. de Méd., ‡ Pharm. Journ., Oct. 1860.

Dr. Donnett speaks favourably of it as a tonic in the *Convalescence of Bilious Remittent Fevers of the tropics.* (Pritchard.)

1324. The other diseases in which it has from time to time been recommended are *Yellow Fever* (Chabert), *Chronic Diarrhœa*, and some forms of *Chronic Dyspepsia:* in the last-named condition it may probably prove a valuable remedy. Locally, it has been employed with alleged benefit in the *Bites of Insects*, *Bruises*, *Sprains*, *Paralysis of the Extremities*, and *Atonic Deafness*. At one time it was lauded in *Hydrophobia* both as a curative and as a prophylactic; but in none of these cases have its alleged virtues been supported by experience.

1325. GUAIACUM. Guaiaci Lignum et Resina. The Wood and the Resin obtained from the Guaiacum Officinale. *Nat. Ord.* Zygophyllaceæ. *Linn. Syst.* Decandria Monogynia. *Source*, West Indies and South America. Imported from St. Domingo and Jamaica.

Med. Prop. and Action. Both the Wood and Resin are stimulant, diaphoretic, and alterative. The Wood is best given in decoction (Guaiacum Wood oz. iij., Sassafras and Liquorice-root ℥ oz. j., Water Ox.) in doses of Oss.—Oj. daily. The Resin, the part most commonly employed, may be given in the form of mixture, but a better form is the Ammoniated Tincture. Guaiacum acts by augmenting the action of the cutaneous capillaries, thereby improving the state of the cuticular function. To obtain its diaphoretic effect, the surface of the body should be kept warm, tepid diluents should be drunk plentifully, care should be taken that the Resin is in a state of minute division, and it should be combined with Opium. If it fail to produce diaphoresis, it acts as a diuretic. In small medicinal doses, gr. x.—gr. xxx. of the Resin, it causes a pleasant sensation of warmth in the stomach, and dryness of the mouth and fauces, and, by proper management, profuse diaphoresis. In larger doses it purges: the heat of the stomach and dryness of the mouth become intense, and, if continued, would produce gastro-intestinal inflammation. It appears to have great power in lessening excessive secretion from mucous surfaces.

Offic. Prep. Of the Wood. Decoctum Sarsæ Compositum. (See Sarsaparilla.)

Of the Resin. 1. Mistura Guaiaci (Powdered Guaiac Resin oz. ss.; Sugar oz. ss.; Powdered Gum Arabic oz. ½; Cinnamon Water Oj.). Dose, fl. oz. j.—fl. oz. iss.

2. Pilula Calomelanos Composita. (See Calomelas.)

3. Tinctura Guaiaci Ammoniata (Powdered Guaiac Resin oz. iv.; Aromatic Spirit of Ammonia Oj. Prepared by maceration). Dose, fl. drm. ss.—fl. drm. j.

Dose of Guaiac Resin, gr. x.—gr. xxx.

It is contra-indicated in all febrile affections, and in inflammatory or irritated states of the gastro-intestinal membrane.

1326. *Therapeutic Uses. In Amenorrhœa*, Dr. Dewees* speaks in the highest terms of the Ammoniated Tincture. He states that he gives it with a confidence which he attaches to no other medicine; that he has succeeded with it where almost all other

* Dewees on Diseases of Females, 6th Ed., p. 122-5.

emmenagogues have failed; and that for more than forty years he has almost daily used this medicine in suppressed catamenia, and more especially in cases of long standing, without its having failed in any instance proper for its use. More cannot be said of any remedy. Such strong testimony, from so respectable an authority, demands more attention to the remedy than is usually accorded to it. The cases which Dr. Dewees considers most benefited by it are simple, idiopathic ones, not dependent on organic disease of the uterus or pregnancy. He accounts for the failure of this remedy in the hands of others—1st, by the system not having been, previous to the use of this remedy, reduced by purging, moderate blood-letting, and low diet, all of which he deems indispensable to its success; and, 2ndly, by the remedy not being properly persevered in. He states that he could furnish a number of instances where it succeeded in restoring the menses, after an interruption varying from nine months to three years. He advises the annexed formula:—℞ Pulv. G. Guaiaci ʒiv., Sodæ vel Potas. Carb. ʒiss., Pulv. Piment. ʒj., Alcohol Dilut. Oj. Let it stand for a few days, and add Spt. Ammon. A. fʒj.—fʒij. to every fʒiv. of the Tincture. Dose, fʒj. thrice daily, gradually increased. If it purge, a few drops of T. Opii may be added; if it constipate, a little Rhubarb may be given. It has proved successful also in the hands of Hannay, Locock, and others.

1327. *In Chronic Inflammation of the Lining Membrane of the Uterus*, Dr. Dewees has seen permanent benefit from the formula advised in the last section. Rest, fomentations, and the hip-bath, should be also employed.

1328. *In Dysmenorrhœa*, when chronic, and when it assumes a rheumatic character, Dr. Rigby* states that he derived great benefit from the use of Guaiacum. Dr. Dewees† also strongly advises the Ammoniated Tincture, as advised in section Amenorrhœa. He says that this remedy is more decidedly useful, where the first menstrual period after its use is more than usually severe. It should be persevered in for several months.

1329. *In Acute and Chronic Fibrous Rheumatism*, Guaiacum is a valuable remedy. Previous to its exhibition in severe cases, antiphlogistic measures should be had recourse to. It acts as a general evacuant on the urinary, cuticular, and abdominal organs. The Mistura Guaiaci is the best form. Dr. Seymour‡ states, after experience in its use in numerous cases, that it acts "with almost unerring success." It has been found to succeed, when Colchicum had previously failed. Dr. Graves regards it

* On Dysmenorrhœa, Lond. 12mo, 1844.

† Op. cit., p. 138.

‡ Med. Chir. Rev., vol. lviii. p. 657.

as an extremely useful remedy, in cases of Chronic Rheumatism. (See art. SULPHUR.)

1330. *In Leucorrhœa, Bronchitis, and in excessive secretions from Mucous Membranes, occurring in connection with a Rheumatic Diathesis*, Drs. Ballard and Garrod* state that they have found Guaiacum highly serviceable and effectual.

1331. *In Chronic Neuralgia*, Dr. Theo. Thompson† states that probably the most efficacious remedy is T. Guaiaci Ammon., in doses of from ℿxx. to f℥j., every four hours. It is particularly serviceable when the disease assumes a rheumatic character.

1332. *In Cynanche Tonsillaris*, Mr. J. Bell‡ strongly recommends the internal use of Guaiacum, in doses of ʒss., suspended in mucilage, every six hours. He considers that, when timely administered, it will cut short the disease 99 times out of 100. It has also been found successful in the hands of Mr. Carson§ and others. Dr. Walker,‖ who regards Guaiacum as "a specific" in ordinary sore throat, speaks highly of its efficacy in *Diphtheria*. He prescribes in all cases the following:—℞ Tinct. Guaiaci Ammon. f℥ss.—f℥vj., Tinct. Cinchon. Co. fʒss., Potassæ Chlor. ℈iv., Mellis q. s. Aq. ad f℥viij., M. Dose, from a tea to a table spoonful from one to four hours, or thrice daily, according to the severity of the case. In some cases a strong solution of Nitrate of Silver is applied locally at the same time.

1333. *In Syphilis*, Guaiacum was formerly regarded as a specific. Dr. Pearson¶ found that it possessed the power of arresting the progress of the disease, and of altogether removing some of the symptoms; but he adds that it has no power in eradicating the disease, which reappears in all its violence when the medicine is discontinued. In constitutional Syphilis, its effects are much more marked than in the primary forms. In the former, when the system has suffered from long confinement and a prolonged use of Mercury, he found the health improved, the strength increased, bad ulcers healed, exfoliations completed; and those anomalous symptoms, which would have been exasperated by the use of mercurials, yielded to Guaiacum. *In Syphilitic Eruptions, and Nocturnal Pains in the Bones*, I have often found Guaiacum, in the form of the Ammoniated Tincture, productive of unequivocal benefit.

1334. *In Dropsy*, Guaiacum has been administered, with the view of stimulating the cutaneous and renal secretion. It was employed with benefit by Dr. Chamberlaine;** but it is only admissible when the disease is of a purely asthenic character.

* Mat. Med., p. 199.
† Lib. of Med., vol. ii. p. 273.
‡ Med. Gaz., vol. xxvii. p. 252.
§ Ibid., vol. xxix. p. 310.
‖ Brit. Med. Journ., Dec. 21, 1861.
¶ Obs. on Various Articles of Mat. Med., p. 10.
** Mem. of Med. Soc. of Lond., vol. iii. pp. 361-371.

1335. *In Granular Disease of the Kidney*, Dr. Copland* regards the Tincture, or Decoction of Guaiacum, as the best of all the class of diuretics; especially when the skin is cool as well as dry.

1336. *In Gout*, the decoction (*ante*) has been extensively employed by the German physicians. Dr. Copland† observes that it is more suitable to the atonic or chronic states of the disease than to the acute. It is, however, sometimes useful, conjoined with alkalies and anodynes, after the bowels have been freely evacuated, in old cases and in debilitated habits. The decoction, or the Ammoniated Tincture, are the best forms in these cases.

1337. *In Epilepsy*, Guaiacum was formerly held in high esteem. Vesalius, Willis, Hoffmann, and others, extolled its virtues; but it has fallen into disuse. It was considered especially useful, if the disease was connected with a syphilitic taint.

1338. *In Amaurosis* it has been advised, but is only likely to prove serviceable when the disease is connected with rheumatism; or when it occurs in persons of a rheumatic diathesis.

1339. GUARANÁ. A preparation from the seeds of *Paullinia sorbilis*, a tree. *Nat. Ord.* Sapindaceæ, indigenous in Brazil. It occurs in cylindrical or spherical pieces of about a pound weight each, surface uneven, brown, sometimes black; so hard as to be broken with difficulty, fracture conchoidal, unequal, resinoid; colour reddish brown, resembling chocolate. Sometimes these pieces are reduced to powder and sold in that state. Its efficacy as a medicine appears to depend upon a crystallizable principle named *Guaranine*, which, if not identical with, is closely allied to theine and caffeine, possessing the following elementary constituents, $C_8H_{10}N_4$.

Med. Action and Uses. By the Brazilians Guaraná is held in high esteem as a stomachic, febrifuge, and aphrodisiac, and is employed by them in dysentery, diarrhœa, retention of urine, and various other affections. Its qualities have been examined by Martius‡ and Gavrelle,§ who agree in regarding it as a valuable addition to the Materia Medica. According to them, it stimulates, and at the same time soothes the gastric system of nerves, and reduces the excited sensibility of the cæliac plexus, thereby diminishing febrile action and strengthening the stomach and intestines, particularly restraining any excessive mucous discharges. At the same time it was found to increase the action of the heart and arteries, and to promote diaphoresis. The dose in powder is gr. lx. three or four times a day. It may be given mixed with water and sugar, or with syrup and mucilage, conjoined with an aromatic. It may also be given in the form of Extract obtained by treating Guaraná with Alcohol, and evaporating to a pilular consistence.

* Dict. Pract. Med., vol. ii. p. 656.
† Ibid., vol. ii. p. 49.
‡ Buchner, Répert. de Pharm., xxxi. p. 370, 1829.
§ Sur une nouvelle Substance Médecinale, &c., Paris, 1840.

It is contra-indicated in plethoric or loaded conditions of the abdominal viscera, and where there exists determination of blood to the head.

1340. *Therapeutic Uses.* From what has been stated above, Guaraná is indicated as a valuable remedy in *Fevers, in reduced states of the Vital Power resulting from exposure, cold,* &c., *Depression of Spirits,* and other allied states; also in *Colic, Flatulence, Anorexia, Nervous Hemicrania.* Excellent effects are said to have resulted from its use in *Diarrhœa* and *Chronic Dysentery.* In cases where *Irritation of the Urethra or Bladder* succeed venereal or attend organic disease, it is said to exert the most salutary effect in soothing the irritability of the mucous membrane, and relieving the nervous depression which so often attends these affections. It is said to increase the venereal appetite, but to diminish the fecundating power. (Ritchie.)*

1341. HÆMATOXYLUM CAMPECHIANUM. Logwood. The Heart Wood sliced. *Nat. Ord.* Cesalpineæ. *Linn. Syst.* Decandria Monogynia. *Hab.* Campeachy, Central America, and West Indies. Imported from Campeachy, from Honduras, and Jamaica.

Med. Prop. and Action. The wood (*ff.*) is astringent and tonic. It contains a crystalline substance, *Hæmatoxyline* ($C_{32}H_{14}O_{12}$ + 2 HO or 6 HO) (Garrod); also *Tannin,* and a resin. When given internally, it becomes absorbed into the system. The colouring principle has been detected in the urine twenty-five minutes after it has been swallowed. "The urine of patients taking Logwood exhibits a pink colour when that fluid becomes alkaline from any cause; in strongly acid urine the colour may not be seen, but the addition of Ammonia readily produces the coloration." †

Offic. Prep. 1. Decoctum Hæmatoxyli (Logwood in chips oz. j.; Powdered Cinnamon grs. lx.; Distilled Water Oj. Boil the Logwood in the water for ten minutes, add the Cinnamon towards the end, and strain fl. oz. xvj.). Dose, fl. oz. j.—fl. oz. ij.

2. Extractum Hæmatoxyli (Logwood in fine chips lb. j.; Boiling Distilled Water Cj. Prepared by maceration and evaporation). Dose, gr. x.—gr. xxx.

1342. *Therapeutic Uses. In Chronic Diarrhœa,* the decoction or the extract of Logwood (the latter in doses of gr. x.—gr. xxx.) is productive of evident benefit. It not only acts as an astringent, but gives a tone to the digestive organs, and to the system generally. I have frequently seen great improvement follow its use, not only in these cases, but in that form of *Dysentery* where the dejections have been copious, of a mucous character, with little admixture of blood; or when the vital powers have been greatly depressed. It is inadmissible as long as active inflammation exists. *In the Diarrhœa of Infants,* the Infusion, in doses of f℥ss.—f℥j., frequently repeated, is advised by Dr. Marshall Hall.‡

* Monthly Journ. of Med. Science, 1852, p. 465, from which most of this article has been extracted.

† Garrod, Essentials of Mat. Med. and Therap., p. 190.

‡ Underwood on Diseases of Children, 9th Ed., p. 199.

1343. *In Leucorrhœa*, the decoction of Logwood, given internally, and used as a vaginal injection, is occasionally of great service. Dr. Churchill * speaks favourably of it; in two or three cases in which he employed it, the discharge diminished, and the patients recovered. Previous to its use, he advises a blister over the sacrum.

1344. *In Cancer*, the Extract has been advantageously employed by M. Desmartis† : he found an ointment of it (Ext. Hæm., Adipis āā ℥ss.) destroys the offensive odour, and diminishes the suppuration so long as it continued to be employed. In *Hospital Gangrene*, he found the same ointment act like a charm ; and it also proved valuable in *Traumatic Erysipelas* of a severe character. It may be advantageously combined with the Perchloride of Iron and other styptics.

1345. HELLEBORUS NIGER vel OFFICINALIS. Black Hellebore. Christmas Rose. *Nat. Ord.* Ranunculaceæ. *Linn. Syst.* Polyandria Polygynia. *Hab.* Central Europe. Imported from Marseilles and Hamburg.

Med. Prop. and Action. The root and rhizome are drastic cathartic, in doses of gr. x.—gr. xx. ; alterative, in doses of gr. ij.—iij. It may be given in decoction (gr. cxx. ad Aq. Oj.) in fl. oz. j. doses, or in the form of alcoholic extract, or in that of Tincture of Hellebore (Pharm. Lond.) in doses of fl. drm. ss.—fl. drm. j. It has been regarded as emmenagogue and anthelmintic, but is so violent and uncertain in its operation that it is rarely employed. In large doses it is a powerful acro-narcotic poison. The fresh root, applied to the skin, causes inflammation and vesication.

Dose, gr. ij.—gr. xx.

1346. *Therapeutic Uses.* The ancients held Hellebore in very high esteem in *Mania*, *Epilepsy*, *Melancholy*, *Scabies*, *Worms*, and other diseases. It is occasionally used in the following diseases at the present time; but even in these, safer and more efficacious remedies may be had recourse to.

1347. *In Anasarca and Dropsy after Fevers*, the alcoholic extract is favourably spoken of by Dr. Darwell.‡ He states that, under its use, he has seen the effusion gradually disappear, without any extraordinary increase of the secretions. It should be discontinued if poisonous effects manifest themselves, but may be generally resumed in a few days. Its use dates from the time of Avicenna.

1348. *In Amenorrhœa and Dysmenorrhœa*, Hellebore was strongly advised by Dr. Mead ; but, on the unfavourable report of Dr. Heberden,§ it fell into disuse. Recently, it has been

* Diseases of Females, p. 135, et seq.

† Med. Times, June 14, 1862.

‡ Cyc. Pract. Med., vol. i. p. 77.

§ Comment. de Morb. Hist., p. 261.

advised by Dr. Chapman* (U. S.). He states that he found it serviceable when it purges, in painful menstruation, attended with torpor and constipation of the bowels, and perhaps with some degree of insensibility in the uterus itself. The Extract, combined with Conium, is the best form for administration. It should be given with caution.

1349. *In Hæmorrhoids or Piles*, Dr. Burne states that no local application affords so much relief (after the first pain has passed) as an ointment composed of ʒj. of Powder of Hellebore and ʒj. of Lard.

1350. Helleborus Fœtidus. Fetid Hellebore. *Hab.* England, N. Europe.

Helleborus Viridis. Green Hellebore. *Hab.* Northern Europe.

Med. Prop. Both these plants are drastic cathartic, and emetic, and, in large doses, prove acro-narcotic poisons. In all respects they closely resemble Helleborus Niger. H. Fœtidus is regarded as a powerful anthelmintic, in doses of gr. v.—gr. xx. of the powdered leaves.

1351. Hemidesmus Indicus. Country Sarsaparilla. (Ununtamul, *Hind.*) *Nat. Ord.* Asclepiadaceæ. *Linn. Syst.* Pentandria Digynia. *Hab.* The whole continent of India.

Med. Prop. and Action. The root is alterative, tonic, and diuretic, in doses of fl. oz. ij.—fl. oz. iv. of the Infusion (oz. iv. ad Aq. Ferv. Oij.) every four hours. Dr. O'Shaughnessy states, that his trials with it have been numerous and satisfactory. Its diuretic operation, he adds, is very remarkable; it acts also as a diaphoretic and tonic, and greatly increases the appetite. He considers its operation to be closely analogous to that of Sarsaparilla, but more decided; an opinion in which, after watching its operation in numerous instances, I fully concur.

Offic. Prep. Syrupus Hemidesmi (Bruised Hemidesmus oz. iv.; Refined Sugar oz. xxviij.; Boiling Distilled Water Oj.). Dose, fl. drm. j. — fl. drs. ij.

Therapeutic Uses. Similar to those of Sarsaparilla, for which it forms an excellent substitute.

1352. Hermodactylus. Hermodactyl. The Cormus or Bulb of an undetermined species of Colchicum. It has, for many centuries, been in high repute among the Greek and Arabian physicians, as a remedy for *Gout and Rheumatism*; numerous commendations in its favour occurring in the writings of Alexander Trallianus, Paulus Ægineta, Avicenna, Rhazes, Serapion, Haly Abbas, &c. Two kinds are met with in the Indian bazaars, the Sweet (Sorinjan Shereen) and the Bitter (Sorinjan Tulk). Chemical analysis affords no explanation of its action, as neither Veratria nor Colchicine have been discovered in either

* Elements of Mat. Med. and Therapeutics, 1825.

kind. Dr. O'Shaughnessy* states, that from some trials which he made with the acetous tincture of the bitter kind, he is led to believe that it possesses all the virtues of the dried Colchicum of Europe. He adds that it certainly deserves a careful and extensive examination. Dose of the Tincture, Beng. Ph. (Sorinjan Tulk ʒiv., Proof Spirit Oij.), ɱxx.—xxx. thrice daily.

1353. HORDEUM DISTICHUM. Common Barley. *Nat. Ord.* Gramineæ. *Linn. Syst.* Triandria Digynia. Cultivated in most parts of Europe.

Med. Prop. and Action. The seeds deprived of the husks (pearl barley) are demulcent in the form of decoction. M. Themont† considers that this decoction acts powerfully on the kidneys, and that it may be advantageously employed when alkalics and stimulating diuretics are contra-indicated. Flavoured to the taste with sugar, lemon-juice, &c., it is an excellent refrigerant drink *in Febrile and Inflammatory attacks; in Gonorrhœa, to relieve the Ardor Urinæ;* and *in Calculous Affections.* It is gently laxative. As an article of diet, Barley is of great importance, but it is less nutritious than many other grains.

Offic. Prep. Decoctum Hordei (Pearl Barley oz. ij.; Distilled Water Oiss. Wash the Barley in cold water, reject the washings; boil it with the distilled water for twenty minutes, and strain).

1354. HUMULUS LUPULUS. The Common Hop. *Nat. Ord.* Urticaceæ. *Linn. Syst.* Dicœcia Pentandria. *Hab.* England. Cultivated in other parts of the world.

Med. Prop. and Action. The dried catkins of the female plant (*vulgo* Hops) are stomachic, tonic, diuretic, and slightly narcotic. Hops contain a *volatile oil* and a peculiar bitter principle, *Lupulite* or *Humulin.* The *Volatile Oil* contains a Hydrocarbon ($C_{20}H_{16}$) with valerol ($C_{12}H_{10}O_2$): the latter by the action of Caustic Potash is converted into *Valerianic Acid*, as shown in the following equation, $C_{12}H_{10}O_2 + 3\ (KO, HO) + 2\ HO = 2\ (KO, CO_2) + (KO, C_{10}H_9O_2) + H_6$, and thus the hydrocarbon may be separated from the valerol. (Garrod.‡) *Lupuline* is the yellow resinous pulverulent substance separated from the strobiles by rubbing and sifting. Lupuline yields about 11 per cent. of the bitter principle, Lupulite.§ The volatile oil is narcotic. The odorous emanations from the oil also possess narcotic properties. Lupuline is tonic, aromatic, and sedative. (See art. LUPULINE.)

Offic. Prep. 1. Infusum Lupuli (Hops oz. ss.; Boiling Distilled Water fl. oz. x. Infuse for two hours in a covered vessel, and strain). Dose, fl. oz. j. —fl. oz. ij.

2. Extractum Lupuli (Hop lb. j.; Rectified Spirit Oiss.; Distilled Water Cj. Prepared by macerating the hop in the spirit for seven days, and boiling the residue with the water for one hour, mixing the two extracts, and evaporating at a temperature not exceeding 140°). Dose, gr. v.—gr. xx.

3. Tinctura Lupuli (Hop oz. iiss.; Proof Spirit Oj. Prepared by maceration and percolation). Dose, fl. drm. ss.—fl. drs. ij.

The *Dose* of Lupuline is gr. v.—xij. (See art. LUPULINE.)

* Bengal Dispensatory, p. 661.
† Journ. de Pharm., Feb. 1845.
‡ Essentials of Mat. Med. and Therap., p. 289.
§ Garrod, op. cit.

1355. *Therapeutic Uses. In Mania and in the Delirium of Fever*, a Hop pillow (the Hops having been previously wetted with spirit to prevent rustling) is occasionally employed, with a view of inducing sleep. It is stated to have been successful in the case of George III.; and Pereira * has several times seen it used with success. Their internal use, in the form of Extract, is favourably spoken of by Mr. Mayo. *In Delirium Tremens*, Prof. G. B. Wood† regards the Tincture as an admirable adjunct to Opium, having seen sleep induced by it when Opium alone has failed. In convalescence from this disease, also, he considers it one of our best remedies for sustaining a moderate tonic and soporific influence.

1356. *In Dyspepsia*, the various preparations of Hops are sometimes given with benefit; perhaps none is superior to a *pure* bitter ale. *In Dyspepsia attended with Pyrosis*, the Extract has been found very serviceable.

1357. *In Rheumatism*, Dr. Maton‡ found the Extract, given internally, very efficacious in allaying pain and in producing sleep. It had a marked effect on the pulse. In the hands of Dr. Bigsby it altogether failed.

1358. *In Cancerous and other Ulcerations*, Mr. Freake§ speaks favourably of the external application of powdered Hops, in the form of ointment.

1359. *In painful Swellings and Tumours*, Dr. A. T. Thompson‖ states that he has seen Hop fomentations afford much relief.

1360. *In Intermittent Fevers*, Lupuline, in doses of gr. vj.—xij. daily, is occasionally effectual. It is a popular remedy amongst the Neapolitans.¶ (See art. LUPULINE.)

1361. **HYDRARGYRUM.** Mercury or Quicksilver. A metal which, in its pure (liquid) state, is apparently inert, as large quantities of it have been taken without producing any of its physiological effects; but occasionally, when subjected to the action of the secretions of the stomach and intestines, it oxidizes and acquires powerful medicinal properties. Workmen and others much exposed to the vapour of Mercury are subject to tremors, stammering, and other nervous affections, which not unfrequently prove fatal. When rubbed into the skin or administered internally, in a state of minute subdivision, it acts energetically on the system. It is of great importance in medicine, as the base of several valuable preparations and salts.

* Mat. Med., vol. ii. pt. ii. p. 376.
† Therapeutics, vol. i. p. 285.
‡ Obs. on Humulus Lupulus, by A. Freake.
§ Op. cit., p. 13.
‖ Dispensatory, p. 484.
¶ Ed. Med. and Surg. Journal, No. xlv. p. 244.

Offic. Prep. 1. Hydrargyrum cum Cretâ. (See art. Hydrargyrum cum Cretâ.)

2. Pilula Hydrargyri. (See art. Pilula Hydrargyri.)

3. Emplastrum Hydrargyri (Mercury oz. iij.; Olive Oil fl. oz. j.; Resin oz. j.; Litharge Plaster oz. vj. Melt together the Oil and Resin; add the Mercury and triturate till its globules disappear; then add the Litharge Plaster previously liquefied). A stimulant and discutient plaster in glandular enlargements and swellings. Sometimes applied over the region of the liver in hepatic enlargements.

4. Emplastrum Ammoniaci cum Hydrargyro (Ammoniac oz. xij.; Mercury oz. iij.; Olive Oil fl. drm. j.: Sulphur grs. viij.). A stimulant and discutient plaster used to disperse glandular swellings, especially venereal buboes.

5. Unguentum Hydrargyri. (See art. Unguentum Hydrargyri.)

6. Linimentum Hydrargyri (Ointment of Mercury oz. j.; Solution of Ammonia fl. oz. j.; Liniment of Camphor fl. oz. j.). Used to excite absorption in chronic tumours and affections of the joints. It is said to produce salivation more readily than the Ung. Hydrargyri, owing to the Camphor and Ammonia it contains.*

1362. *Physical Effects of the Preparations of Mercury on the System.* When taken in moderate doses, they increase the action of the various secreting glands and organs; stimulating some, the salivary glands and liver, for example, in an especial manner. From its power of augmenting the secretions, Mercury is spoken of as a sialagogue, cholagogue, purgative, diuretic, sudorific, emmenagogue, &c. Some of the latter effects are probably rather due to its general action on the system, removing morbid states which interfered with the due performance of the secreting functions of the organs, than to a direct effect on them. Mercury causes in the constitution, in some more than others, a great amount of irritability, making it more susceptible of all impressions. It quickens the pulse, increases its hardness, and occasions a kind of temporary fever, which, however, commonly diminishes when the patient has become habituated to the medicine. This irritation is chiefly observable when it is administered in small doses; in large ones it has been found to calm the system and to act apparently as a direct sedative. If long continued, it produces a specific action on the salivary glands, commonly called Salivation or Ptyalism, which may always be taken as a criterion that the system has become affected. The biliary secretion is also greatly increased, as is evidenced by the copious bilious stools; the blood is impoverished; the patients become thin and pale; and Dr. Farre considers that it destroys the red blood-globules (Globulin and Hæmatin) as effectually as they may be destroyed by venæsection. Mr. H. Smith† found, that blood drawn from a person under the influence of Mercury is generally cupped and buffed; that the clot is less solid, and easily broken down, and that there is less cohesion of the principles which form the vital part of the blood. In some cases it will not show any tendency to coagulate; in others it is thick and tarry. Sir B. Brodie‡ observes, that in many instances a course of Mercury renders the urine alkaline; in some individuals, a single dose of Calomel will produce the same effect. In numerous analyses of the urine of patients under the influence of Mercury, Dr. Owen Rees§ failed to detect a trace of albumen. The urine is generally increased in quantity. In the saliva of persons under the same circumstances, Simon‖ found an increase of solid constituents; and according to Dr. Bostock¶ it is less viscid than in a healthy state, and contains a substance analogous to coagulated albumen. Mercurials produce the absorption of morbid fluids and materials of low organization, *e.g.* the albuminous matters which are deposited in the tissues in syphilis. It is uncertain whether they produce this effect by directly stimulating the absorbents or by preventing fresh deposition. In large doses, some of the salts of Mercury, particularly the Bichloride, act as irritant poisons.

* Pereira, vol. i. p. 908.

† On the Action of Mercury in Inflammation, Med. Times, vol. xvi. 1847.

‡ On Diseases of the Urinary Organs, p. 210.

§ Med. Gaz., July 1851.

‖ Animal Chemistry.

¶ Med. Chir. Trans., vol. xiii.

1363. *The occasional ill Effects of Mercury.* 1. *Griping and Purging.* This may be partially obviated by combining it with a sedative; or it may be necessary, if the stools become bloody and dysenteric, to discontinue it altogether. 2. *Sore Throat, Ulceration, or Mortification of the Tonsils,* accompanied with fever. In this case, the medicine should be discontinued, and the ulcerated throat treated on general principles. 3. *Violent Salivation,* which not unfrequently terminates in mortification. 4. *A renewal of Salivation at a future period.* There are many cases of this on record. In one related by Dr. Christison,* salivation reappeared at the end of four months, although no mercurial had been given in the interval. 5. *Eruptions of the Skin,* known under the names of Erythema Mercurialis, Eczema Rubrum, Hydrargyria, &c. 6. *Erethismus Mercurialis,* which is characterised by a great depression of the vital powers, a sense of anxiety about the præcordia, irregular action of the heart, frequent sighing and faintness, which occasionally proves fatal. The medicine should be immediately discontinued, and the patient exposed to a healthy atmosphere, and tonics and liberal diet employed. 7. *Rheumatic Pains and Nodes,* resembling those produced by Syphilis. 8. *Mercurial Palsy,* and other derangements of the nervous system. 9. A cachectic state of the constitution, known as *Cachexia Mercurialis.*

No certain rules can be laid down respecting the appearance of these ill effects: in some instances, they appear after a few moderate or small doses; in others, it may be continued for months without any apparently ill effects. The appearance of any of them indicates the necessity of immediately relinquishing the use of the remedy. (See also next section.)

1364. *Remarks on the Use of Mercurial Preparations.* 1. From a peculiar idiosyncrasy, some persons are unable to take the smallest dose of Mercury without its producing serious, and occasionally fatal consequences: for example, Dr. Christison† quotes a case, in which exfoliation of the jaw, and death, resulted from the external application of ʒiij. of Ung. Hydrarg.; and in another, the same effects were produced by two grains of Calomel. Before commencing its use, therefore, the practitioner is bound to make strict inquiry, whether, on any former occasion, it has disagreed. If such be the case, Mercury in any form should be avoided.

2. The action of all mercurial preparations is promoted by a previous use of blood-letting, emetics, and an antiphlogistic diet.

3. The age, sex, temperament, and general health of the patient, influence greatly the action of Mercury. Children are salivated with great difficulty. Drs. Bennett, Clarke,‡ Evanson, and Maunsell,§ state that they have never seen a child under two years of age, in whom unequivocal salivation was established. Aged persons are also extremely difficult to bring under the influence of Mercury. Prof. Graves accounts for this circumstance in both cases (children and old persons) by the undeveloped state of the parotid glands in the former, and by their shrunken and atrophied state in the latter.

4. Persons in robust health are generally very slightly susceptible to the action of Mercury; and the state of health in the same person at the time of taking the medicine greatly modifies its effects; thus a woman who will resist its influence for a considerable period when in health, will be salivated by a single dose when suffering from anæmia.

5. Those who pursue their outdoor avocations, and at the same time live freely, are with difficulty brought under its influence; and Dr. Macgregor states that it is almost impossible to salivate a person who smokes largely.

6. In some acute inflammations, particularly in that of the brain, it is with great difficulty that ptyalism can be established; and Dr. Graves‖ supports his own opinion by those of Marshall, Annesley, and others, that it is almost impossible to effect this in persons labouring under suppuration of the liver.

7. The sanguine temperament is less susceptible to the action of Mercury than the nervous and lymphatic.

* On Poisons; p. 414.
† Ibid, p. 408.
‡ Lancet, 1843-44, p. 278.
§ On Diseases of Children, p. 108.
‖ Clinical Medicine.

8. An animal diet retards, and an antiphlogistic regimen assists, the development of mercurial action. Acids also interfere with it.

9. In order to insure the certain and rapid effects of Mercury, the patient should carefully avoid exposure to great atmospherical changes. So important did Mr. Carmichael * regard this point, in the treatment of Syphilis, that he states that he deems it better, even though Mercury be strongly indicated, to dispense with it altogether, rather than to exhibit it, while the patient is exposed to a cold and variable climate. A similar opinion is expressed by Sir B. Brodie and Mr. Lawrence. Exposure to wet should be particularly avoided.

10. The following valuable observations of Dr. Prout † merit especial attention. "The stimulating effects of Mercury," he observes, "may be analogically illustrated by the stimulating effects of dram-drinking. As the stomach accustomed to ardent spirits will scarcely tolerate any weaker beverage, so the liver accustomed to the stimulus of Mercury will hardly respond to any other influence. Those, therefore, who in early life have on all trivial occasions resorted to the powerful stimulus of Mercury, are usually obliged, like early dram-drinkers, to persist in the baneful habit. The most superficial observer must have noticed, that patients who habitually take Calomel are more than ordinarily subject to biliary attacks, as they are termed, and that these will rarely yield to any other remedy. Nor is this its only fault; the habitual use of this remedy exerts positive mischief on the assimilating functions, and on the kidneys of some individuals." He adds, "I can truly say, that a large proportion of the most inveterate dyspeptic and urinary diseases which I have seen, have been distinctly referable to the abuse of Mercury. It may be objected, that many individuals begin the use of Mercury early, and continue it with the same evident advantages to extreme old age; to this it is answered, that many persons commence the use of spirituous liquors at an early age, and continue to use them to extreme old age; but no one will say that such ought to become the rule. The same remark is strictly applicable to the abuse of Mercury. *The object of these remarks is to impress on the reader the important fact, that when it has no real disease to combat, Mercury is liable to give occasion to disease; and, consequently, to warn him against the indiscriminate use of this active remedy on trivial occasions, and in all diseases and constitutions.*"

1365. *Mercury is either contra-indicated or injurious*—1, *in all forms of tubercular disease*, viz., Scrofula, Phthisis, Scrofulous Iritis, and in all diseases, including Syphilis, occurring in persons of a strongly marked scrofulous diathesis; 2, *in Phagedenic Ulceration;* 3, *in Gout, and Arthritic Inflammation of the Eyes;* 4, *in Scurvy, and in persons of the Scorbutic diathesis:* Dr. Budd ‡ asserts that even in Syphilis occurring in persons of this habit, the employment of Mercury is unsafe and injurious; 5, *in Inflammatory Dropsy*, Dr. Todd § cautions the practitioner against the use of Mercury, regarding it not only as useless, but injurious; 6, *in Inflammation of the Bladder*, Sir B. Brodie ‖ says that Mercury is certainly not beneficial and is often injurious; 7, *in Diabetes*, Dr. Prout ¶ says that he has almost invariably seen it produce mischief: 8, *in Granular Disease of the Kidney*, it is condemned by Christison ** and most subsequent writers. It should not be given in *Dropsy dependent on Granular Disease of the Kidneys.* As a rule, it should not be administered when the urine is albuminous. 9, *in Enlargement of the Spleen*, Dr. Abercrombie †† gives strict injunctions against it; and 10, *in all Anæmic states from whatever cause arising.* On this subject, the reader will do well to consult Dr. Habershon's work, "On the Injurious Effects of Mercury in the Treatment of Disease." (London, 8vo, 1860.)

1366. *Modes of Administration.* 1. Internally. The salt to be employed, and

* Clin. Lect., p. 157.

† On Stomach and Renal Diseases, 4th Ed., p. 63, et seq.

‡ Lib. of Med., vol. v.

§ Med. Gaz., April 6, 1849.

‖ On Diseases of the Urinary Organs, p. 108.

¶ Op. cit., p. 56.

** Lib. of Med., vol. iv. p. 292.

†† Diseases of the Abdominal Viscera.

the particular dose, must be regulated by the severity or character of the disease to be treated:—thus, in chronic or mild cases, the less active preparations of Mercury, as Hyd. c. Cret., Plummer's Pill, or small doses of Blue Pill, are indicated. Its alterative effect is also well obtained from minute doses of Corrosive Sublimate. In acute diseases, when its antiphlogistic powers are required, no salt is equal to Calomel, in doses of gr. j.—ij. every three or four hours, combining it with Opium, to prevent its passing off by the bowels. Some practitioners, with a view of speedily affecting the system, have advised Calomel in gr. xx. doses, repeated at long intervals; whilst others employ very minute doses, frequently repeated. Dr. Law,* of Dublin, states that gr. $\frac{1}{12}$ of Calomel, repeated every hour, will produce salivation in from twenty-four to thirty-six hours, and the same effect may be produced by Blue Pill, in equally minute doses; the whole quantity required never exceeding six grains. Mr. Clay,† of Manchester, advises this mode of administration; and in several instances, I have in this manner induced soreness of the mouth in Hindoos (Sepoys). I have never found more than two grains of Calomel, thus exhibited, requisite to establish soreness of the mouth, and mercurial fetor of breath. When it is desired to induce speedy salivation, Corrosive Sublimate is neither the most manageable nor the most certain preparation. Mr. Clay‡ states, that for a period of twenty years he has pushed it to a great extent, both in adults and in children, and that he has never been able to produce decided ptyalism by its use. According to the experience of Mr. Lempriere,§ however, it proves useful in the fevers of the West Indies. The Germans consider, that in order to produce speedy salivation, the Unguent. Hyd. Fort., given internally, is most efficacious. 2. *Inunction.* This is the most ancient mode of administering Mercury; and when it is desired speedily to affect the constitution, it may be advantageously combined with the internal use of the same remedy. Sir B. Brodie‖ (alluding to its use in Syphilis) considers that it is the most certain and preferable mode; that it is less apt to gripe and purge; and that it does not damage the constitution half as much as when taken by mouth. To be effectual, it should be rubbed in before the fire, for three-quarters of an hour at first, and afterwards for a shorter time. The great objection to it is its uncleanliness. Dr. West speaks highly of it in Pneumonia of children, when Mercury cannot be administered internally. 3. *Fumigation.* "This," observes Sir B. Brodie,¶ "is the least valuable mode of administering Mercury. You may affect the system too much or too little, and you may be taken by surprise by the patient's gums becoming all at once excessively sore." Notwithstanding the unfavourable opinion expressed by so high an authority, fumigation with Mercury has been much employed, and with the best effects, by recent writers on Syphilis. Its value has been strongly advocated by Mr. Langston Parker, and the Calomel vapour bath is considered by Mr. Lee one of the best methods of bringing the system, in cases of constitutional Syphilis, under the influence of the metal. When it is desirable to employ fumigations, the patient should be placed in an apparatus like that used for Sulphur baths, and instead of Sulphur being thrown on a hot iron, the black Oxide of Mercury gr. lx., or the Sulphuret of Mercury gr. xxx., or Calomel gr. xx.—xxx., may be used. The patient may be very speedily affected, by allowing him to hold his head inside the bath for two or three minutes, so that he may inhale the mercurial vapour. Local mercurial fumigation is occasionally of great service.

1367. *Therapeutic Uses. Syphilis.* For nearly three centuries, Mercury has been regarded as a remedy of first-rate importance, in the treatment of this disease; for a long period, indeed, it was considered by the highest authorities as a specific, and was con-

* Dublin Journ., Jan. 1839.
† Lancet, Aug. 21, 1841.
‡ Op. cit.
§ On Diseases of the Army in Jamaica (P).
‖ Lectures, Lancet, 1844, p. 676.
¶ Op. cit., p. 677.

sequently employed indiscriminately, in every case which came under treatment. This injudicious practice was fully exposed by some of our military surgeons, including Hennen, Rose, Guthrie, &c., a few years since; and much has been written, both for and against the mercurial treatment of Syphilis. In France, for instance, M. Ricord has advocated the practice of giving a six months' course of a daily dose of Mercury, followed by a three months' course of Iodide of Potassium, in cases of indurated Chancre. On the other hand, so high an authority as Professor Syme states that the natural history of Syphilis, where treated by hygiene and external applications without Mercury, is that of a very slight disease; and the non-mercurial treatment has been recently strongly advocated by Dr. Hughes Bennett, Dr. Drysdale,* and others. Dr. Nevins,† writing in 1851, gave the following excellent summary of the facts disclosed by the controversy:—

1. That every form of venereal disease *has been* and *may be* cured, *without* the administration of Mercury.

2. That, in some forms of Syphilis, Mercury is not only useless, but injurious, when given so as to affect the constitution.

3. That in those cases in which it is admissible, the good effects to be derived from it may be obtained from much smaller quantities than were formerly given.

4. That some of the symptoms and effects formerly attributed to this disease were due to the Mercury itself.

5. That notwithstanding all the forms of Syphilis *may* be cured without it, yet its judicious administration materially hastens the cure, in many forms of the disease.

6. That the occurrence of secondary symptoms is much less liable to happen after the administration of this remedy than if the disease has been cured without it.

7. That the liability to secondary symptoms is, in a great degree, dependent upon the length of time which the syphilitic virus has had, for being absorbed into the system; and that, therefore, it becomes a point of primary importance to heal a venereal sore as quickly as possible; and as this can generally be sooner effected with Mercury than without it, its employment on this ground is most advisable. (Tuckett.)

8. That in those venereal sores characterised by slowness of progress, and the deposition of albumen or lymph (commonly called hard chancres), the use of this remedy is most essential; whilst in those characterised by rapidity of progress, and the absence of any barrier by the effusion of lymph, or those in which

* Med. Times and Gaz., March 26, 1864.

† Trans. of Lond. Pharm., 1851, p. 426.

there is a tendency to rapid ulceration, it is, on the contrary, less beneficial, if not positively injurious.

9. That in the venereal eruptions of a papular or scaly form, it is beneficial; whilst in those of an ulcerative character, as Ecthyma or Rupia, it is hurtful.

10. That its administration ought generally to be suspended when suppuration is taking place in a large bubo.

11. That the benefit derived from its use is not proportional to the amount of salivation induced; and that, except as an evidence of a constitutional effect, this result is undesirable.

The treatment of Syphilis, as usually practised at the present day, is extremely simple; at the same time that it is effectual and perfectly safe, so far as the constitution is concerned. If a chancre be seen immediately after its appearance, before it presents a well-marked indurated base, the ulcer should be cauterized with the Nitrate of Silver, or strong Nitric Acid; and it should be so applied as thoroughly to destroy its surface. This, with rest, quiet, antiphlogistic regimen, saline aperients, and the local application of warm water, will often remove the disease permanently, without any mercurial whatever. Should, however, the ulcer have existed three or four days, and the syphilitic virus have become absorbed into the system, Mercury should be had recourse to. It is a matter of minor importance which preparation is employed. Pil. Hydrarg. is the one most generally eligible, and it should be continued twice or thrice daily, until the gums become slightly sore. This is its proper limit, beyond which it should not be carried. This soreness should be kept up, neither diminished nor increased, for three or four weeks; at the expiration of which period, in the majority of cases, the ulcer will be healed, and the induration removed. The Lotio Nigra, or diluted Liq. Plumbi, may be applied topically, on a piece of linen (lint is apt to produce irritation). Inunction with Ung. Hydrarg. Fort. is regarded by Sir B. Brodie * as the only certain way of effecting a cure. *In the Syphilis of Infants*, he advocates a similar mode of treatment. He directs diluted Ung. Hydrarg. (℥j. to Lard ℥j.) to be spread over a flannel roller, which is to be bound round the body once a day. The child kicks about, and the cuticle being thin, the Mercury is absorbed. It does not, he adds, either purge or gripe, or make the gums sore, but it cures the disease. In a number of cases this practice has met with success. For internal use the Hydrarg. c. Cret. is the best formula.

1368. *In Secondary Syphilis*, alterative doses of Mercury, particularly of the Corrosive Sublimate or of Plummer's Pill, have been found highly serviceable; but it has been replaced in a

* Lectures, Lancet, Feb. 17, 1844.

great measure (especially where the osseous system is affected) by the Iodide of Potassium, which produces all the good without the ill effects of Mercury. The great value of both remedies appears to depend upon their property of promoting the absorption of the lowly organized albuminous material which is effused into the tissues in constitutional Syphilis. Mr. Langston Parker * strongly advocates mercurial fumigation. The salts which he employs are the Sulphuret, the Oxide, and the Black Oxide, of which from ʒss.—ʒiv. may be used with safety. The fumigation should be continued for twenty or thirty minutes. The Iodide of Potassium or of Iron, or Corrosive Sublimate, is given internally at the same time. He speaks highly of the efficacy of this treatment. Mr. H. Lee recommends Calomel gr. xx. or more as the salt best adapted for the purpose (*ante*).

1369. *In Syphilitic Sarcocele*, Mr. Hamilton,† of Dublin, regards a somewhat protracted course of Mercury till the mouth is sore as the only certain means of cure. The mercurial action should be kept up for six or eight weeks. When the swelling is reduced, Iodide of Potassium will effect a cure. Dilute Iodine ointment may be applied locally, in the later stages.

1370. *Cases of Syphilis in which Mercury is inadmissible.* 1. In old debilitated, broken-down constitutions. 2. In those strongly predisposed to Scrofula or Phthisis. 3. In persons labouring under scorbutic disease. 4. In those who drink much spirits, &c., habitually; in irregular livers, and in those whose avocations necessarily expose them to great atmospherical changes, particularly wet. 5. When there is considerable inflammation in the neighbourhood of a primary sore, the probability being (as observed by Sir B. Brodie ‡) that it will produce sloughing.

1371. Mercury has long held a high repute in the treatment of *Acute Inflammations.* These are often found to yield in a remarkable manner when the system is brought under the influence of the remedy. The effect of Mercury in acute inflammations may be partly ascribed to its power of increasing the secretions and influencing the capillary circulation, partly to its influence in promoting the absorption of morbid products, and partly to its effect on the constitution of the blood. It is of most value in sthenic inflammations accompanied by the effusion of lymph. In low asthenic inflammations, and in those of a scrofulous and erythematous type, it is generally positively injurious. It has more effect in controlling inflammation of serous than of mucous membranes, and in that of the parenchyma of the liver than of the lungs.§ Its value in rheumatic inflammation is differently estimated by different observers, but the balance

* On the Treatment of Secondary Syphilis, &c., Lond. 1850

† Essays on Syphilis, Dublin, 1849.

‡ Lancet, Feb. 17, 1844.

§ Garrod, Op. cit. 83.

of evidence is in its favour in *rheumatic inflammations of the heart*. *In Chronic Inflammation* it is of service in removing fibrinous and other morbid products.

The other Therapeutic Uses of Mercury will be more fully enumerated in the succeeding articles, particularly in the article Calomel.

1372. HYDRARGYRUM AMMONIATUM. Ammoniated Mercury. NH_2Hg_2Cl. Hydrargyri Ammonio-Chloridum. Ammonio-Chloride of Mercury (Ph. Lond.). Hydrargyri Amido-Chloridum. White Precipitate. The Precipitate produced when Ammonia is added to a solution of Corrosive Sublimate. It may be regarded as a compound of Chloride with Amide of Mercury ($HgCl + HgNH_2$). *Comp.* 2 Eq. Mercury = 200 + 1 Chlorine = 35·5 + 1 Nitrogen = 14 + 2 Hydrogen = 2 = 251·5, Eq. Wt.

Med. Prop. and Action. It is said to be a powerful salt, death having resulted from its use; but it is never given internally. Externally, it is employed in the form of ointment.

Offic. Prep. Unguentum Hydrargyri Ammoniati (Ammoniated Mercury grs. lxiv.; Simple Ointment oz. j.). The Unguentum Præcipitati Albi of the Pharm. Ed.

1373. *Therapeutic Uses. Skin Diseases. In Acne Indurata, Impetigo, Porrigo, Herpes*, and in some analogous cases, the White Precipitate ointment (*ut supra*) is an efficacious application. *In Sycosis or Mentagra*, its use is often attended with excellent effect; the parts should be bathed with Lotio Nigra before each application. *In Herpes Zoster*, Dr. Corfe * states that this ointment subdues the pain and irritation in a remarkable manner. It should be applied two or three times a day. *In Lichen and Pityriasis Palmaris* it is advised by Mr. E. Wilson.† Ammoniated Mercury dusted on the surface, or employed in the form of ointment, destroys pediculi.

1374. *In Ophthalmia Tarsi*, the Ointment, applied to the margins of the eyelids at night, is sometimes of the greatest benefit.

1375. CALOMELAS. Calomel. Hydrargyri Sub-chloridum. Sub-chloride of Mercury. Hg_2Cl. Hydrargyri Chloridum. Chloride of Mercury (Pharm. Lond.). Called also the Protochloride, the Muriate and the Mild Muriate of Mercury. *Comp.* Mercury 84·92, Chlorine 15·08, in 100 parts; or 2 Eq. Mercury (2×100) = 200 + 1 Chlorine = 35·5 = 235·5, Eq. Wt.

Med. Prop. and Action. *Alterative*, in doses of gr. ½—j., either alone, or as it occurs in Plummer's Pill. *Purgative*, gr. ij.—vj. in combination with Jalap,

* Med. Times, vol. xviii. p. 304. † Diseases of the Skin, pp. 266, 295.

Scammony, and other purgatives. When it is wished to bring the system under the specific influence of Mercury, the dose is gr. j.—gr. ij. or more, frequently repeated, with a small portion of Opium to prevent its passing off by the bowels. It is said to have a sedative action in doses of gr. xx.—gr. lx. It is best given in the form of pill, with some inert confection. Externally it is applied in the form of ointment, or as a lotion, with Liq. Calcis (*vulgo* black wash), or in the form of powder. Calomel is the best salt of Mercury for rapidly and certainly bringing the system under the influence of the metal, and is consequently preferable in all acute inflammations. Its *modus operandi* is imperfectly understood; a small dose evidently increases the activity of the liver and biliary organs, as is shown by the character of the stools which are produced by it: in doses of gr. xx. in acute dysentery, its sedative action is often very evident, and the benefit which arises from it in Croup, and other affections of the throat, has led to the belief that it acts specifically upon the lining membrane of the trachea and larynx; no less certain and evident is its action on the salivary glands. Of all medicines in the Materia Medica, none is of more general utility and efficacy, when used with judgment, than Calomel. In some idiosyncrasies it produces most serious effects.

Offic. Prep. 1. Pilula Calomelanos Composita. Plummer's Pill. (See art. Calomelanos Pil. Comp.)

2. Unguentum Calomelanos (Calomel grs. lxxx.; Prepared Lard oz. j.).

Dose of Calomel: as a purgative, gr. ij.—gr. x.; to produce mercurial specific effects, gr. j.—ij., or more, frequently repeated.

Incompatibles. Alkalies, and their Carbonates; Acids; Lime Water; Salts of Iron, Lead, and Copper; the Chlorides and Hydrosulphurets.

1376. *Therapeutic Uses. In Acute Sthenic Inflammation, particularly in that of Serous Membranes*, the experience of the highest authorities, for the last seventy years, has proved Calomel to be a remedy of the highest value. It is commonly said that it exerts a twofold action: one, antiphlogistic, constraining the morbid action of the blood-vessels, particularly the capillaries; the other, reparatory, that is, aiding the reparation of parts by removing the substances foreign to them.* Mr. Henry Smith † has suggested that its action is confined to the blood, in which it effects such an alteration as to incapacitate it from effusing lymph, thus virtually putting an end to inflammatory action. He adduces many ingenious arguments to prove the correctness of his theory; and it certainly bears the appearance of truth. In many cases local or general blood-letting should precede the administration of Calomel in acute inflammation. When, however, this rule has not been observed, and the disease has been allowed to progress for some period unchecked, Calomel, either alone or combined with Opium, frequently gives the patient the best chance of recovery. The combination of Calomel and Opium, in the treatment of acute inflammation, was first proposed, in 1783, by Dr. Hamilton,‡ of Lynn Regis, who employed it successfully in Hepatitis and in other inflammatory affections. The late Dr. Armstrong emphatically said of this treatment, that "it deserves to be written in letters of gold, on account of its great practical

* See Latham on Diseases of the Heart.

† Med. Times, vol. xvi. p. 132.

‡ Duncan's Med. Commentaries, vol. ix. 1783.

utility." The Opium relieves the pain and irritation, and calms the nervous system; at the same time that the Calomel controls the action of the capillaries, impoverishes the quality of the blood, and arrests the effusion of lymph. Some writers have erroneously attributed the value of this combination to the Opium alone, but Mr. H. Smith,* with much justice, observes, "It would be folly to give the Opium without the Mercury, but it would be a cruelty to give the Mercury without the Opium." Indeed, it appears that in combination they possess an antiphlogistic power, which either of them, employed singly, is not capable of producing. We cannot be sure, observes Dr. Watson,† that Mercury exercises its full influence on the system, unless we produce a degree of soreness of the gums; and the earlier this can be induced the better. Some practitioners believe that a combination of Calomel and Blue Pill acts sooner and answers better than a proportional dose of either given alone. The general formula employed is, Calomel gr. j.—iij., Opium gr. ½ to gr. j., repeated every six or four hours, according to the urgency of the disease. Antimony may be in some cases advantageously conjoined. (See ANTIM. TART.) Saline medicines and an antiphlogistic diet should be enforced. When it is an object to obtain a speedy effect on the system, mercurial inunction should be employed together with its internal use.

1377. *Fevers. In Typhus and Typhoid Fevers*, Calomel has been said to exercise a powerful and beneficial influence. It has been asserted that under its use the secretions assume a normal character; that the nervous system is soothed and calmed; the mouth, which was before parched, dry, and loaded, becomes clean and moist; that if diarrhœa be present, it is checked; and should the fever be complicated, as it frequently is, with gastro-intestinal inflammation, that it subdues and relieves it. Its mode of operation is chiefly constitutional; its minor effect is upon the abdominal viscera. It was first employed in 1806 by Autenrieth, and its value was admitted by Drs. Armstrong, Elliotson, Copland, and other authorities. The idea, however, of administering Calomel or any other mercurial with the intention of producing its specific effect on the system, in either typhus or typhoid fever, is well-nigh exploded in the present day. The theories on which the practice was founded, together with the practice itself, are completely abandoned by English physicians. In the early stage of *Typhus* and of *Relapsing Fever*, a Calomel purge may be admissible.

1378. *In uncomplicated Intermittent Fever*, Mercury in any form is generally uncalled for, unless as a purgative at the commencement of the attack, when it may be advantageously com-

* Med. Times, op. cit. p. 213. † Lectures, vol. i. p. 234.

bined with Pulv. Jalapæ. When, however, hepatic congestion accompanies the fever, Quinine will often fail to develop its powerful anti-periodic virtues, until this state has been removed by the exhibition of mercurials; and when the fever becomes complicated with visceral inflammation, the latter may require Calomel and Opium, in the manner laid down when treating of acute inflammation.

1379. *In the Remittent Fevers of the Tropics, and of India in particular*, active treatment is necessary, or a fatal termination will ensue. Dr. J. Johnson* advocated the following outline of treatment, which for a time found many supporters. Bleed boldly and decisively till the head and præcordia are relieved; and, immediately after, administer ℈j. of Calomel, with gr. j. or gr. iss. of Opium. This will greatly tranquillize the nervous and vascular disturbance. In the course of a few hours, a purgative of Calomel and Colocynth, or Castor Oil, or Sulphate of Magnesia, should be given, which will rarely fail to bring away a most copious discharge of fetid bilious fæcal matter, to the great relief of the head and epigastrium. Immediately after the operation of the cathartic, Calomel (gr. v.—x.), according to the severity of the symptoms, combined with Antimonial powder, should be administered every four or six hours till the mouth is slightly affected, when, according to the experience of Dr. Johnson, the safety of the patient will be secured in forty-nine cases out of fifty. Annesley, Ferguson, Twining, Bancroft, Copland, and some of the highest authorities, are advocates of a somewhat similar treatment; but it is now generally admitted, that, excepting perhaps in the early stage of the disease, Calomel is of comparatively little value, if not positively injurious. Its use should never be carried beyond establishing slight soreness of the mouth. During the remissions Quinine should be freely administered, unless contra-indicated by cerebral symptoms. Cold to the head, refrigerant drinks, and aperient enemas, should be employed in conjunction with other treatment.

1380. *In Bilious Remittent, or Yellow Fever*, Mercury has had many advocates of talent and experience, whilst others regard it as useless, if not injurious. It cannot be denied that Mercury, as well as all other remedial agents, often fails to produce any impression on the disease, which, in spite of this and other means, steadily progresses to a fatal termination; but, as far as personal observation in Jamaica for two or three years entitles me to form an opinion, I believe that Mercury, given boldly and decidedly till salivation be produced (having, in the first instance, at the commencement of the attack, had recourse to one full bleeding) is the plan of treatment under which the fewest deaths occur.

* On Tropical Climates, &c., p. 110.

It is often extremely difficult to establish salivation; but, when this is produced, I have frequently witnessed an amelioration of the symptoms, and eventual recovery. The treatment advised in the last section in Remittent Fever has been, with some modification, adopted in this. The treatment by large doses of Quinine is reported to be more successful. (See QUININE.)

1381. *In Puerperal Fever, Puerperal Peritonitis*, Calomel has found its advocates. Dr. Churchill* observes that, after full depletion, the next most powerful remedy is Calomel alone, or in combination with Opium. It may be given in large doses, or in small ones frequently repeated, and it should be continued until an impression is made upon the disease, or until the mouth is affected, unless purging be induced, in which case the Calomel may be omitted, and the Opium continued alone. After a decided effect is produced, the dose may be diminished, and the intervals lengthened. Dr. R. Lee substitutes Dover's Powder for the crude Opium. Dr. Locock,† without denying the value of Calomel in some instances, remarks that he has seen patients recover where the mouth has not been affected, and several die where full mercurialization had been established. The testimony of Drs. Ferguson and Collins, also, is not in favour of the mercurial treatment.‡ It is often extremely difficult to establish salivation in these cases.

1382. *Diseases of the Heart. In Carditis, Pericarditis, and Endocarditis*, active treatment is necessary, or, in some cases, the disease will run to a fatal termination. Immediately after depletion, local or general, Calomel may be had recourse to. It should be given in doses of gr. j.—iij. with gr. j.—iss. of Opium every four or six hours, and Ung. Hydrarg. may be rubbed in at the same time; the object being to induce speedy salivation. Dr. Hope§ observes, that "a manifest abatement of the symptoms generally takes place, immediately on the effect of the remedy becoming apparent in the mouth, especially if a free salivation be established within the first thirty or forty hours." The same views and mode of treatment are advocated by Dr. Latham,‖ who gives the annexed table, showing, that where salivation has been readily induced, the exocardial murmur of *Pericarditis* has, at an early period, disappeared.

Case 1.	Salivation produced in	1	day;	the murmur ceased in	4	days.
,, 2.	,,	,,	2	days;	,,	,,	7 ,,
,, 3.	,,	,,	3	,,	,,	,,	4 ,,
,, 4.	,,	,,	4	,,	,,	,,	28 ,,
,, 5.	,,	,,	5	,,	,,	,,	14 ,,
,, 6.	,,	,,	5	,,	,,	,,	25 ,,

* Practice of Midwifery, p. 470.
† Lib. of Pract. Med., vol. i. p. 359.
‡ See Murphy, Lect. on Parturition and Lactation, p. 594.
§ On Diseases of the Heart, p. 187.
‖ Lectures on Diseases of the Heart, p. 308.

Dr. Taylor's* careful observations render it probable that the value of Mercury in these cases has been overrated, and that more benefit was derived from the blood-letting, which formed a prominent feature in the "heroic" treatment, than from the Calomel. The question of the exact value of Mercury in rheumatic *Peri-* and *Endocarditis* cannot at present be considered definitely settled. There is no doubt that formerly mischief was not unfrequently done by the enormous doses of Calomel prescribed in these affections. On the other hand, the balance of evidence up to the present time is decidedly in favour of mild mercurialization. Antimonials may be joined with the mercurial treatment, antiphlogistic regimen enforced, and a slight soreness of the gums should be kept up for a week or ten days, unless the symptoms yield in that period.

1383. *In Hypertrophy of the Heart*, the long-continued and frequent employment of Mercury in small doses has met with a strong advocate in Mr. Salter; and Dr. Colles, likewise, has dwelt with much emphasis on the beneficial influence of this remedy over some of the most distressing effects of "Morbus Cordis." (Dr. Joy.†)

1384. *In Arteritis*, when Mercury is not contra-indicated by a strumous or shattered constitution, Dr. Hope‡ advises its use in such doses as to produce slight but prompt salivation. It should not be employed until the first violence of the inflammation has subsided, when its use is attended with excellent effect.

1385. *Diseases of the Lungs. In Acute Sthenic Pleuritis*, active treatment is of the highest importance, as, from the extent of serous membrane generally involved, there is great probability of much effusion of lymph into the thoracic cavity, unless the inflammation be rapidly subdued. For this purpose, after such local or general depletion as the age, constitution, and condition of the patient render advisable, Calomel, in combination with Opium and Tartar Emetic, may be given in repeated doses, until slight tenderness of the gums is produced. The sooner the system is brought under the influence of Mercury, the sooner may the urgency of the symptoms be expected to subside. Should, however, the inflammation have been allowed to progress for a considerable period, and any amount of lymph be effused into the thoracic cavity, Calomel will generally fail in effecting its removal, even though the system be thoroughly brought under its influence. In the early part of the attack, an antiphlogistic regimen should be enforced, and, in the later stages, blisters in succession may be applied. The same treatment, with some slight modifications, is applicable to *Acute Sthenic Bronchitis.*

* Med. Gaz., July 20, 1849.
† Lib. of Med., vol. iii. p. 354.
‡ Cyc. Pract. Med., vol. i. p. 149.

The Opium should be omitted from the above formula, if any signs of venous congestion are present. In these cases, it is a remedy of great value.

1386. *In Acute Sthenic Pneumonia*, Calomel, combined with Antimony, is held by many to exercise a powerful influence. Dr. Watson* considers that Tartar Emetic is best adapted to the first degree of inflammation, namely, that of engorgement, and the mercurial plan to the second, to that of hepatization. Dr. Walshe,† on the other hand, asserts that no scientific demonstration of the view that Calomel is a more valuable medicine than Antimony in the stage of red hepatization exists. He thinks that mercurials are desirable in those cases only, where, for some cause or other, Antimony is inadmissible. *In the Pneumonia of Children*, Dr. West‡ observes, that a very high rank as a remedial agent must be given to Calomel. "I have been accustomed," he continues, "after due depletion, to administer it in doses of two grains combined with gr. j. of Tartar Emetic, and gr. ½ of Dover's Powder, and to repeat it every four hours, to children of four years of age; diminishing the Antimony after the lapse of twenty-four hours, if distressing sickness were occasioned by it; but persevering in the use of Calomel, provided the patient were not overpurged, until the disease began to yield, or the gums showed signs of mercurial action. The latter occurrence is by no means frequent, and in no instance have I met with dangerous affection of the mouth from its use." When it caused purging, Dr. West speaks highly of the value of mercurial inunction. "Under its use," he states, "recovery has taken place, even when circumstances had seemed to warrant none but a most unfavourable prognosis." He adds that he has employed it in the proportion of ʒj. of Ung. Hydrarg. rubbed into the thighs and axillæ every four hours, in children of four years of age, and that he has seen the symptoms gradually subside under its use, although he never observed salivation produced by it.

1387. *In Phthisis*, the employment of Mercury has been advised by Drs. Rush, Stewart, Physic, Watt, Graves, O'Beirne, Munk, Bell, and others. All modern experience, however, is adverse to its employment; and the majority of those cases which are recorded as having been cured by its influence appear to have partaken more of the nature of Bronchitis than of Phthisis, or perhaps have been cases of syphilitic disease of the lung. From the injurious effects of Mercury upon other forms of tubercular disease, we should expect positive harm from it in Phthisis. An

* Lectures, vol. ii. p. 93.
† On Diseases of the Lungs and Heart, Edit. 1854, p. 436.
‡ Brit. and For. Med. Rev., No. xxx.

occasional mercurial purgative may, however, be of benefit in this disease, when the state of the digestive organs and the secretions show much biliary derangement. Dr. Graves'* observations on the use of Mercury in Phthisis are well worthy of careful perusal.

1388. *Diseases of the Throat, Fauces, &c. In Inflammatory Croup*, Mercury is strongly advocated by Dr. Hamilton, of Edinburgh, Rush, Frank, Michaelis, and others. It is, without doubt, a remedy of great value in this disease, as it immediately tends to control the inflammatory action, to arrest the secretion of the adventitious membrane, as well as to cause absorption of the latter when effused. If Tartar Emetic in repeated nauseating doses and hot baths fail to remove the urgent symptoms, Calomel should be had recourse to without loss of time. From gr. j. to ij. may be given every one or two hours, according to the urgency of the case; and Ung. Hydrarg. F. may be rubbed into the arms and legs, until the system has become sensibly affected by it. This is the line of practice strongly advised by Dr. D. Davis,† and will frequently be found efficacious. Cloths, steeped in water as hot as can be borne, should be assiduously applied to the chest and throat.

1389. *In Acute Laryngitis*, Calomel is the sheet-anchor; it should be given at the outset of the disease, and in such doses as to bring the system under its influence with the greatest rapidity. Dr. C. B. Williams‡ states that he has more confidence in the power of Mercury to cure Laryngitis, than in that of bloodletting; looking upon the latter as chiefly useful in retarding the progress of inflammation and effusion, so as to allow the mineral to act before a fatal obstruction is produced. Inunction may be employed simultaneously with its internal use. If the gums can be made sore, a secretion from the throat is established, which generally reduces the swelling of the glottis.

1390. *In Chronic Laryngitis* (not of phthisical origin), a milder mercurial course, but such as slightly to affect the gums, is the best treatment. When this takes place, there is generally a diminution of pain, and of the constriction of the larynx; improvement of voice, and loosening of the cough. Leeches and blisters may be applied with advantage at the same time. It is particularly useful when the disease has a venereal origin. (Williams.§)

1391. *Diseases of the Head. In Acute Inflammation of the Brain and its Membranes*, local or general abstraction of blood should precede the use of Calomel, which should be given in full and repeated doses (gr. ij.—iv. every three or four hours), in order to bring the system as rapidly as possible under its influence. It is, however, a matter of the greatest difficulty to establish saliva-

* Clin. Lect., vol. ii. p. 108, et seq.
† Obstetric Medicine, p. 497.
‡ Lib. of Med., vol. iii. p. 44.
§ Op. cit.

tion in this disease; but Drs. Crawford, Abercrombie, and others consider that Calomel acts most beneficially when we can obtain its full purgative effect. Opium should not be given in combination with the Calomel, as it is likely to aggravate the severity of the symptoms. Blisters to the nape of the neck, or to the extremities, ice to the head, and a strict antiphlogistic regimen, form the other principal points of treatment. The establishment of salivation is generally attended with a marked amelioration of the symptoms.

1392. *In Insanity*, the administration of mercurials is occasionally productive of benefit, but much discrimination is required in their use. Dr. Copland's* observations on this point are well worthy of attention. Mercurials, he remarks, are employed for mental disorders, with three intentions,—1st, to evacuate biliary and fæcal accumulations; 2nd, to improve the secretions, particularly that of the liver; and 3rd, to produce a copious flow of saliva. To fulfil the *first* of these intentions, Calomel is particularly useful, especially in melancholia and in mania; but should be conjoined with or followed by other purgatives. To produce the *second* effect, any of the mercurial preparations may be employed, either alone, or with Tartar Emetic, Digitalis, Camphor, &c. To accomplish the *third* end, Calomel, or Corrosive Sublimate, or Blue Pill, may be given, either combined as above, or alone. The employment of mercurials to an extent likely to produce salivation is of very doubtful propriety, although recommended by some writers. Dr. Prichard remarks, that it is by no means a general remedy for maniacal diseases; but in cases of torpor, with suppression, or a very scanty state of any of the secretions, it is frequently advantageous. "Several instances of cure effected by salivation," continues Dr. Copland, "have been recorded by authors; still I believe," he adds, "that Mercury exhibited to the extent necessary to produce the effect, and especially when it fails of causing it, is quite as likely to be as injurious as beneficial —to cause partial insanity, melancholia, and mania, particularly in weak, susceptible, and irritable constitutions. Unfortunately, we know nothing of the symptoms of insanity which indicate probable advantage from mercurial salivation. The most likely conditions are mania or melancholia consequent upon apoplexy, or complicated with hepatic disease. Mercurials, and particularly salivation, are most likely to prove injurious in every form of insanity which has been occasioned by depressing moral, or by exhausting physical causes, and especially by prolonged anxiety or by masturbation. Corrosive Sublimate, however, in minute

* Dict. Pract. Med., vol. ii. pp. 528-9.

doses, as an alterative in conjunction with tonics, is sometimes of service in several forms of mental disorder, and particularly in scrofulous constitutions."

1393. *In Acute Hydrocephalus*, Calomel, for above half a century, has been a standard remedy; but great doubts as to its real utility exist. Dr. Bennett* observes, that, although some cases have appeared to owe their recovery to its administration, yet, in numerous cases, no benefit has resulted, although Mercury has been given in the most judicious manner; whilst in others, recovery has taken place, although it has not been employed at all. Dr. H. Kennedy,† indeed, remarks that out of twenty cases of Hydrocephalus of which he has notes, in which the specific effects of Mercury were produced, in not one of them was the result favourable. It is, however, a remedy highly thought of by the German and French physicians. They give it in doses of gr. ½ every three or four hours, till it produce green, slimy stools, when they direct it to be suspended for a short time. Rilliet‡ thinks favourably of it, and advises its persevering use. At the same time he directs cold to the head, sinapisms to the feet, and turpentine glysters. Cathartics should never be omitted.

1394. *In Chronic Hydrocephalus*, Calomel is strongly advised by Golis and many other eminent authorities. Golis advises it in doses of gr. ½, twice or thrice daily, until it purges; and at the same time inunction with Ung. Hydrarg. Fort. The mercurial treatment, however, has been generally superseded by Iodine, Cod Liver Oil, and the external use of Tartar Emetic. When a mercurial treatment is resolved upon, the Hyd. c. Cret. is a good form for internal use.

1395. *In Delirium Tremens*, Dr. Copland,§ considering that biliary derangement favours the supervention of the attack, advises the following formula :—℞ Calomel. Camphor. āā gr. x., Pulv. Opii gr. j., ft. bolus. This is to be followed in one or two hours by an enema. Dr. Corfe‖ found that full doses of Calomel, given freely, so as to unload the stomach and intestines, will often induce sleep when Opium has failed. He has published three cases illustrative of its efficacy. Dr. J. Bird¶ also speaks favourably of the free use of Calomel as a means of restoring the proper excretory functions of the liver, and thereby eliminating the poisoned products from the blood.

1396. *In Apoplexy*, Calomel (gr. x.—xv.), mixed with a few grains of Camboge, rubbed up with butter, and placed at the root of the tongue, is advised by Dr. Copland as a speedy and effectual purge. It is not, however, unattended with danger, alarming ptyalism

* Lib. of Med., vol. ii. p. 78.
† Dublin Quart. Journ., Feb. 1851.
‡ Prov. Journ., Feb. 20, 1850.
§ Dict. of Pract. Med., vol. i. p. 502.
‖ Med. Times, June 16, 1849.
¶ Lond. Journ. of Med., May 1850.

having followed its administration.* When the attack has passed off, a slight mercurial course has been found useful in promoting the absorption of any effused fluid, and in restoring the normal character and state of the secretions. In *Sthenic Apoplexy*, a more moderate dose of Calomel (gr. v.), with a drop of Croton Oil placed in the same way at the root of the tongue, is often of great value in emptying the bowels and unloading the portal circulation.

1397. *Diseases of the Eye and Ear. In Ophthalmia Neonatorum*, the introduction of finely-powdered Calomel into the eye has been employed with marked success by Dupuytren, Kluge, of Berlin, Van Siebold, of Göttingen, and others. It is introduced into the eye by means of a camel's-hair pencil, loaded with the powder, which is shaken from it into the eye, while an assistant separates the lids. It may be employed at the earliest period of the disease, once a day in mild, twice a day in severe cases. From one to two hours after the application, the eyes may be washed with warm water. A cure is generally effected in from four to ten days. Iodine and its salts should be avoided during its use. Dr. Wells† speaks of having used with great advantage the insufflation of Calomel in *Scrofulous Ophthalmia*, in *Opacities of the Cornea, and other Eye affections of a scrofulous nature.*

1398. *In purulent Ophthalmia*, Calomel (gr. ij.) and Opium (gr. ¼), repeated every second hour or thrice a day, till slight ptyalism is induced, is advised by Mackenzie;‡ and it appears to be useful in relieving the nocturnal circum-orbital pain; but, beyond this, it does not seem to exercise much influence. Dr. Watson§ considers it quite useless, and if useless, mischievous; and Mr. Lawrence‖ states, that his experience corresponds with that of Vetch and Walker, who have seen salivation produced in many instances without the smallest advantage. Local applications, blood-letting, &c., are measures which prove most beneficial. Mr. A. Poland¶ has published some excellent remarks on the abuse of Mercury in this and other forms of diseases of the eye.

1399. *In Amaurosis dependent upon vascular excitement of the Retina*, which resists leeches and other antiphlogistic measures, a course of Mercury, so as to establish a mild ptyalism, has been found beneficial. The ptyalism is advised by Lawrence and Middlemore to be kept up for a week or ten days.

1400. *In Syphilitic and Idiopathic Iritis*, Mercury is regarded by the best authorities almost as a specific. Calomel (gr. j.—ij.),

* See Dr. Bright's Case, Guy's Hospital Reports, part ii. p. 337.
† Ophthalmic Hospital Reports, Jan. 1862.
‡ On Diseases of the Eye, p. 427.
§ Lectures, vol. i. p. 306.
‖ On Diseases of the Eye, p. 208.
¶ Lancet, May 15, 1858.

with Opium (gr. ¼—½), may be given every four or six hours, until the mouth becomes sore, when the redness of the iris visibly vanishes, the pain is relieved, and the inflammatory action arrested. The iris at the same time should be kept free by the application of Belladonna, the bowels carefully regulated, strict antiphlogistic regimen enforced, and inunction of Ung. Hydrarg. with Pulv. Opii employed every night, to relieve or prevent the nocturnal pain with which the affection is generally accompanied.

1401. *In Otitis or Inflammation of the Internal Ear*, the same principles which guide the practitioner in other inflammations apply equally to this, with one exception, that the Opium should be omitted. Its employment in these cases is generally attended with a serious aggravation of the symptoms. The Mercury may, however, be advantageously combined with small doses of Tartar Emetic, leeches, salines, antiphlogistics, and the application of blisters to the nape of the neck.

1402. *In some forms of Deafness*, an alterative dose of Mercury is often most serviceable. (See Argent. Nit.)

1403. *Diseases of the Abdominal Viscera. In Acute Peritonitis*, Calomel, combined with Opium, is the sheet-anchor, after local or general depletion. It should be given early, and repeatedly, till the system become affected. Dr. M'Adam* notices a fact which has been observed by other physicians, that, when the gums become sore, the symptoms improve and the patient almost invariably recovers. The bowels should be kept open by mild enemas, and antiphlogistic measures enforced. A similar treatment is most effectual in *Enteritis*. Purgatives of a strong or irritating nature should be avoided.

1404. *In Gastro-Enteritis complicated with lesions of the Lungs* (by no means an uncommon complication), Dr. Stokes† considers that a combination of Mercury with Opium, so as to induce ptyalism, is the remedy the most entitled to confidence, after bleeding and the use of blisters. Care should be taken that it does not purge, as such an effect is decidedly injurious in this form of disease.

1405. *In Acute Hepatitis*, occurring in otherwise healthy persons, a full blood-letting, followed by a full dose of Calomel (gr. x.) and Opium (gr. j.), and subsequently by a purgative (Pulv. Jalapæ Co. ʒj.), often mitigates or subdues the urgency of the symptoms. If they, however, persist, the induction of a mild degree of ptyalism is advisable. Here Calomel and Opium may be given in small and repeated doses, and they may in all

* Cyc. Pract. Med., vol. iii. p. 307. † Ibid., vol. ii. p. 337.

cases be advantageously conjoined with Tartar Emetic, as pointed out by Dr. Cutlilfe.* Leeches to the verge of the anus, to relieve the portal circulation, are often most serviceable. Hot fomentations to the abdomen are also useful. Perfect rest and a strict antiphlogistic regimen should be enforced. In neglected cases, and when the disease occurs in asthenic individuals, the above treatment requires modification. When the violence of the symptoms is subdued, Nitro-hydrochloric Acid may be had recourse to with advantage (see that article). It is only in the earlier stages of Hepatitis that Mercury can be of any service: when the inflammation has progressed and passed into a state of suppuration, no advantage can be expected from Mercury; it cannot cause the absorption of pus, and by debilitating the patient it may tend to increase the general disturbance of the system. The extreme difficulty of inducing salivation after abscess has formed in the liver is well known. The Mineral Acids, the Iodides, counter-irritation, setons, &c., promise, under such circumstances, more advantage than mercurials.

1406. *In Chronic Hepatitis*, alterative doses of Mercury, so as to correct a vitiated state of the biliary secretion, are often of great benefit. Dr. J. Johnson† advises the following formulæ :— ℞ Ext. Coloc. Co. ʒiss., Calomel. gr. xv., Ant. Pot. Tart. gr. iij., Ol. Carui gutt. viij., M. ft. pil. xxx.; or, Ext. Aloes ʒj., Pulv. Antimonialis gr. x., Pil. Hydrarg. ʒj., Ol. Carui gutt. vj., M. ft. pil. xv. Two of these pills are to be taken at bedtime. These, with a seton over the region of the liver, and the use of the nitro-muriatic bath, are spoken of as being highly efficacious. The salts of Iodine may sometimes be advantageously substituted.

1407. *Dysentery.* The Calomel treatment of dysentery, formerly so much in vogue, has of late years been much modified; the scruple doses of the mineral advocated by Annesley, Johnson, &c., having been entirely abandoned. "In acute uncomplicated cases," observes Sir R. Martin,‡ "a moderate bleeding from the arm, followed by a full dose of Calomel (gr. x.) and James's Powder, or Ipecacuanha (gr. x.), given at bed-time; a warm bath or hot fomentations to the abdomen; a morning aperient, followed during the day by sudorifics conjoined with diuretics; a moderate use of demulcent drinks, allowing no other sustenance, will, in a very few days, bring about convalescence." It must, however, be admitted that the majority of cases will not yield to this simple treatment; under which circumstances further measures must be had recourse to. For many years I used with

* Indian Lancet, Feb. 15, 1861.
† On the Influence of Tropical Climates.
‡ Influence of Tropical Climates, Ed. 1861, p. 441.

advantage Mr. Annesley's formula:—℞ Pil. Hydrarg. gr. ij.—iij., Pulv. Ipecac. Rad. gr. j.—ij., Opii gr. $\frac{1}{4}$—$\frac{1}{2}$, M., ft. pil. 4tis vel 5tis horis sumend. Incipient soreness of the mouth was always taken as an indication of the remedy having been carried far enough. A good formula has also been proposed by Dr. Stewart:* ℞ Calomelas gr. $\frac{1}{2}$, Morphiæ gr. $\frac{1}{4}$, Quiniæ Sulph. gr. ij., M., ft. pil. 2dis vel 3tiis horis sumend. Further experience has, however, shown me, as it has done others, that Dysentery can, and has been cured without Mercury in any form; and that when employed, its use (except as an occasional aperient) is limited to the first or early stage, when inflammation of the mucous intestinal membrane exists. After ulceration is established, no good can be expected from this remedy. Opium and Ipecacuanha, either alone or combined, followed by mineral astringents, are then chiefly to be relied upon. In the asthenic forms of Dysentery, especially in the scorbutic form, Mercury should never be employed. Perfect rest in a recumbent position, a spare, farinaceous diet, a flannel bandage round the abdomen, leeches to the verge of the anus, and anodyne enemata, are accessories which should never be neglected. When aperients are required, the mildest, as Castor Oil, Sulphur and Cream of Tartar, or Rhubarb and Magnesia, should be employed. The "Ipecacuanha treatment," lately re-introduced by Mr. Docker, promises to supersede the mercurial and other modes of treatment.

1408. *In Hepatic Dysentery*, Mercury in any form requires to be given with the greatest caution, and never so as to affect the system. Here the Iodide of Potassium, or the Nitro-Hydrochloric Acid, internally and externally, offer the best chances of success.

1409. *In Chronic Dysentery dependent upon Ulceration of the Intestines*, Mercury is rarely either advisable or admissible, unless there is reason to suspect hepatic derangement, when it should be given in small alterative doses, and not with a view of obtaining the specific action of the mineral on the system. In these cases, the metallic tonics, but particularly the Nitrate of Silver, are productive of far greater benefit than can be obtained by any of the salts of Mercury. (See Argenti Nitras.)

1410. *In the Diarrhœa of Infants*, Dr. Underwood† justly observes, that when laxative, alkaline, and absorbent medicines have been found to produce no permanent good effect, Calomel often proves a sovereign remedy. It may be given in doses of

* Indian Annals of Med. Science, No. 2, p. 432.

† On Dis. of Children, 9th Ed. p. 198.

gr. ½, for two, three, or four nights in succession, and in general no purgative should be given in the morning, but the Mercury should be left to its proper action.

1411. *In Dyspepsia* depending upon a vitiated state of the biliary secretion, a mild mercurial course will often be effectual when other remedies fail. It is not advisable, at any period, to carry it to the extent of salivation. The Hyd. c. Cret. or Plummer's Pill are the best formulæ. Dr. W. Philip * recommends Calomel in doses of $\frac{1}{20}$ of a grain; a seton, at the same time, being placed over the region of the liver.

1412. *In Dysphagia dependent upon Organic Stricture of the Œsophagus*, the employment of Mercury is often attended with marked benefit. A case illustrative of its powerful influence, and in which an eventual cure was effected, is related by Mr. Nunkeley.† In this case it was carried to salivation.

1413. *In Jaundice* complicated with a deranged state of the duodenum, one full dose of Calomel (gr. v.), followed by a saline draught, will often entirely remove the disease. "When it occurs," observes Dr. Watson,‡ "in connection with acute or chronic inflammation of the liver, Mercury forms an essential part of the treatment;" and, unless the disease yields sooner, he urges the remedy until its effect upon the gums be apparent. *In Icterus Calculosus*, when the presence of gall-stones in the ducts is the cause of the disease, or when organic disease of the liver is present, Mercury is inadmissible; indeed, Dr. Prout § considers that the use of Mercury under these circumstances is calculated to do great and irreparable mischief. Dr. Thudichum also strongly condemns the practice of giving Mercury, so as to produce its constitutional effects to persons suffering from *Gall Stones* at any stage of the malady. (Ranking.)

1414. *Cholera.* The value of Calomel in the treatment of Cholera; the doses in which, and the period at which, it should be given; whether it is best administered alone or in combination with Opium, stimulants, &c., are all points on which much discrepancy of opinion exists among medical men. Mr. Ross,‖ in a series of valuable papers, has attempted to clear up these difficulties; and much credit is due to him for the judgment and talent he has displayed in his task. He has furnished us with the following analysis of above 6,000 cases, in which the treatment has been recorded, drawn from all sources, in England and on the Continent.

* On Protracted Indigestion, Lond. 1827.

† Med. Times, vol. i.

‡ Lectures, vol. ii. p. 559.

§ On Stomach and Renal Diseases, p. 254.

‖ Med. Times, vol. xix.

A General Synopsis of Treatment and Mortality of Cholera.

Treatment.	Cases.	Deaths.	Rate per Cent.
Venous Injection	90	78	85·7
Stimulants—viz., Brandy, Ammonia, Turpentine, Cajeput Oil, &c.	3,055	1,792	58·8
Ditto, with emetics of Ipecacuanha	37	25	67·
Ditto, with Calomel and Opium	356	214	60·
Ditto, with Ice	58	29	50·
Opium	81	47	58·
Calomel and Opium	196	112	57·14
Calomel	376	147	36·59
Blood-letting, with Calomel and Opium, and antiphlogistic medicines	285	168	59·
Ipecacuanha	21	12	57·
Ditto, with stimulants, as above	37	25	67·
Ditto, with blood-letting and Sulphate of Quinine	161	81	50·
Ditto, with blood-letting alone	222	104	47·
Ditto, with moderate warmth	281	98	34·9
Salt, with cold water	607	112	20·
Tartar Emetic	21	4	19·
Ice, with stimulants, as above	58	29	50·
Ice alone	142	43	30·
Dr. Stevens' combination of Salts	88	67	76·3
Greville-street ditto, with cold water	107	15	14·
Miscellaneous	17	8	47·6
Total	6,296	3,210	51· Mean rate per Cent.

A glance at this table will show the comparative mortality which has occurred under various modes of treatment, and it will be seen that though the mortality of cases treated with Calomel is much less than those treated by transfusion, stimulants, &c., yet it is much greater than those treated by Ice, Tartar Emetic, and salines. In 376 cases treated by Calomel, the percentage, we see, is about 36; but of this number, Mr. Ross observes, are 331 cases treated by Dr. Ayre * and Dr. Peacock; if these had been omitted, the percentage would have been 62·9 instead of 36. Now the plan of treatment adopted by these gentlemen was the administration of gr. j.—ij. of Calomel, with gutt. j.—v. T. Opii, every five, ten, or fifteen minutes. Dr. Ayre omitted the Opium

* On the Treatment of Malignant Cholera, Lond. 8vo, 1833; a very valuable Treatise.

when lx. or lxxx. drops had been given. Under this treatment Dr Peacock states that he did not lose a single case out of 30; and the mortality among 191 cases treated by Dr. Ayre was not more than 18 per cent. Dr. Ayre subsequently states that the total number thus treated was 219, deaths 43, being a mortality of 19·6 per cent. Stimulants were strictly forbidden, and the patient was allowed to drink as much cold water as he pleased. On the other hand, small doses of Calomel were given by Mr. Banner, of Liverpool, in conjunction with Port Wine, and the mortality was 52·6 per cent. At the Cholera Hospital, Holbeck, small doses of Calomel, with large doses of Brandy, and subsequently large doses of Calomel, with small doses of Brandy, were administered, and the mortality was 53 per cent. When Calomel was given with large doses of Opium, the mortality was 57·14 per cent. The mortality in London, under large doses of Calomel, is stated by Mr. Ross to be 46·66 per cent. Compare this with the result of the same practice elsewhere. Dr. Stilson,* of Malta, when the disease prevailed in that island, in 1837, administered ℈j. doses of Calomel every half-hour or hour during the stage of collapse; but, when the urgent symptoms began to abate, the interval was lengthened. During the epidemic he distributed *eighty-seven thousand grains of Calomel* to 373 patients, being, on an average, 230 grains to each individual. One man took eleven hundred and sixty grains, and recovered. The mortality under this practice was 52 per cent. The above data are not without a valuable moral, assuming them to be correct, which there is no reason to doubt. They point out that Calomel, to be efficacious, should be given in very small doses, and uncombined with other remedies, unless it be a minute portion of Opium. Stimulants and large quantities of Opium are shown to interfere with the action of the remedy, and to neutralize the good effects which would otherwise follow. Dr. Ayre's success has been, without doubt, very great, and depends, in all probability, in a great measure, upon his allowing the patient to drink freely of cold water, a practice which seems not only safe, but in the highest degree beneficial.

1415. *In Tabes Mesenterica*, Calomel was a remedy formerly in high esteem, but it has been almost entirely superseded by Cod Liver Oil and Iodine. When these fail, the following formula of Mr. Abernethy's may occasionally prove useful:—
℞ Calomel. gr. ss., Pulv. Rhei gr. iij., Pulv. Zingib. gr. ij., M. ft. pulv. altern. nocte sumend.

1416. *Against Worms*, particularly *A. lumbricoides*, or round worm, Calomel was highly esteemed by Rush and others, who considered that it acts specifically upon the worm, independent

* The Cholera at Malta in 1837, by Dr. Watson, Lond. 1848.

of its purgative effect; and Laennec states, that he has procured expulsion of the worm in a dead state by means of mercurial friction; whereas, under the use of other anthelmintics, they had always come away alive. It is rarely used at present by itself, but is highly esteemed as an adjunct to other purgative anthelmintics.

1417. *Diseases of the Genito-Urinary System. In Acute Nephritis*, "The combination of Calomel and Opium," observes Dr. Christison,* "so familiarly employed in other acute inflammations, has not been much resorted to in this species, but may be presumed, nevertheless, to be admissible." Opium, given after a full blood-letting, is regarded as more efficacious. (See OPIUM.) The same remarks apply to *Cystitis*. It must be remembered that Mercury is badly borne whenever the functions of the kidney are interfered with, and there is any retention of urea in the blood. In Bright's disease it is undoubtedly contra-indicated.

1418. *In Amenorrhœa*, Mercury is recommended by men of first-rate talent and experience, although a strong feeling against it appears to be entertained by the majority of medical men. Dr. D. Davis† speaks of it as the most powerful emmenagogue existing; and states that it has often, under judicious administration, restored the due performance of the catamenial function, as well as the pristine health and strength, after a long list of other remedies had been tried in vain. Dr. Ashwell's‡ experience is also decidedly in its favour. "It is not," he observes, "to be used in slight cases, nor where there is extreme exhaustion, a predominant irritability, or a tendency to phthisical or strumous disease. But in obstinate Amenorrhœa, where there is chronic inflammation, or permanent congestion, and any evidence of incipient structural change, there is no remedy equal to Mercury." "If salivation," he adds, "be produced and maintained, Mercury often ensures decided and permanent benefit." The mercurial effect should be carried so far as to produce soreness of the gums and moderate salivation; and these he directs to be kept up for twelve or sixteen weeks. Dr. Davis advises that it should be given internally in the following form:—Calomel gr. iij.—iv., Opium gr. j., M.; or it may be introduced into the system by inunction with Ung. Hyd. into the femoral and crural surfaces. Great care, he adds, should be taken to avoid profuse salivation; such an occurrence might be followed by an aggravation of all the symptoms. As an emmenagogue it has now fallen into disuse.

1419. *In Pruritus Pudendi and Pruritus Ani*, Dr. Tournie§

* Lib. of Med., vol. iv. p. 277.
† Obstetric Medicine, p. 237.
‡ Diseases peculiar to Women, p. 77.
§ Prov. Journ., April 1851.

states, that he has adopted the following treatment with great success:—First, if the parts are covered with scales or dry crusts, emollient cataplasms and baths are employed until these are removed. An ointment composed of 4 to 6 parts of Calomel and 30 of Lard is applied twice daily; and, after each application, the parts are sprinkled with a powder composed of 1 part of Camphor and 5 of Starch. The proportions may be varied according to circumstances. "Experience," he says, "shows, that the ointment alone is inefficacious; and the Camphorated Starch, singly, allays the itching, but does not effect the cure." He found it in the highest degree efficacious in the above affections, in *Intertrigo*, *Chronic Eczema of the Scrotum*, and in several *Lichenoid Affections*. The application of Calomel, in these cases, was proposed by Dr. P. Younge,* of Georgia, in 1833.

1420. *Other Diseases. In Diseases of the Spinal Column*, where there is extreme pain and tenderness over a portion of the spine, which has not existed for any length of time, and where symptoms clearly indicate the existence of *chronic inflammation of the bones*, or *incipient ulceration of the inter-vertebral cartilages*, Mercury may be employed with a very good prospect of success. It acts by preventing the effusion of lymph, which, pressing on the nerves as they emerge from their canals, produces either partial or total paralysis. (Mr. H. Smith.†)

1421. *In Acute Rheumatism*, Calomel was first employed by Dr. Hamilton,‡ who advised Mercury to be given until the gums were sore, having previously employed venæsection. A modification of this treatment was successfully and extensively adopted by the late Dr. Hope.§ If the patient was strong and plethoric, he was bled at the outset of the attack. Calomel gr. viij., with Opium gr. iss. at bedtime, was followed in the morning by a purgative draught of Infus. Sennæ. During the day, the following draught was administered:—℞ Vin. Colchici ♏xv., Pulv. Ipecac. Co. gr. v., Mist. Salin. ʒx., M. ft. haust. ter in die sumend. When the pain and swelling were greatly reduced, which occurred generally in two, and almost always in four days, the Calomel was omitted, or, if the gums became in the slightest degree tender, it was discontinued earlier, but the Opium and the other remedies were continued. By these means, a cure was generally effected in seven days. No local treatment, excepting fomentations, was employed. The advantages of this plan, according to Dr. Hope, are, the great rapidity of cure, the relative rarity of cardiac inflammations, and, when these do occur,

* American Journ. of Med. Sciences, Aug. 1833.

† Med. Times, op. cit., p. 215.

‡ Medical Commentaries, 1783.

§ On Diseases of the Heart, p. 179, Ed. 3.

their easy resolution, compared with that which follows other modes of treatment. Dr. J. Johnson* considers that Mercury is, perhaps, of all remedies, the most powerfully anti-rheumatic; but Dr. Macleod† regards it as more adapted to the fibrous or diffuse form of Rheumatism than to the synovial form; in which, he observes, it often fails. Dr. J. Bird‡ thinks, that it is more useful when given in doses to produce a cathartic, rather than a constitutional effect. In Acute Rheumatism in plethoric subjects, both in England and India, he regards it as an invaluable remedy, from the special action it exercises on the biliary secretion, and as an agent for depurating the blood. In Rheumatism occurring in Sepoys, Dr. Malcolmson§ regards Mercury as beyond measure the best of all remedies; he adds, "There are very few forms in which that disease is seen in India, in which it is not safe, and generally effectual." It may be observed, however, that authorities are by no means unanimous as to the value of Mercury in Acute Rheumatism. By those who advocate its use, it is not given in the same heroic doses as formerly. It is doubtful whether it possesses any peculiar power of lessening the duration of the disease. *In Chronic Rheumatism*, the mercurial treatment is inferior in efficacy to many others, unless it be of a syphilitic origin, when a mild course of Mercury has been found to afford benefit.

1422. *In Sciatica and Lumbago*, a mild mercurial course has occasionally proved effectual, when other remedies fail. In acute cases, Prof. Graves‖ states that there is no one remedy in which he has greater confidence than the following, which he has repeatedly seen productive of striking benefit:—℞ Morph. Acet. gr. iij., Calomel. gr. vj., Pulv. Jacobi gr. xij., M. ft. pulv. vj., sumat. j. tertiâ horâ. It must generally be continued until the gums are slightly sore. In less acute cases, where the patient has to be much exposed, or to follow his avocations, the Iodide of Potassium is to be preferred.

1423. *In Acute Synovitis*, the same treatment as in acute inflammation should be pursued; local or general depletion, followed by Calomel and Opium, until the gums are slightly sore. Cold lotions, or warm fomentations, according to the sensations of the patient; perfect rest and antiphlogistic diet, are the other measures from which benefit is obtained. If the inflammation arises in gouty or rheumatic subjects, Colchicum may be added or substituted; if in subjects debilitated by Syphilis, or by a previous course of Mercury, Iodide of Potassium.

* Medico-Chir. Rev., vol. lvi. p. 540.
† On Rheumatism, &c., 1842, Lond.
‡ London Journ. of Med., March 1851.
§ On Beriberi and Rheumatism, p. 27, part ii.
‖ Dublin Journ., vol. xviii. p. 244.

1424. *In Scrofulous Affections of the Joints, and in Morbus Coxarius*, Mercury, so given as to induce speedy but slight ptyalism, has been advised by Drs. O'Beirne, Bellingham, Graves, &c., but the practice has never been adopted generally, in consequence of the well-known injurious influence of Mercury in other scrofulous affections. Its advocates, however, speak highly of its efficacy, and enjoin at the same time perfect rest.

1425. *In ununited Fractures*, a mild mercurial course, so as gently to touch the gums, will occasionally be found to accelerate a cure. A case strikingly illustrative of this is related by Mr. B. Cooper.*

1426. *In Phlegmasia Dolens*, leeches should in most cases be first employed, and after their application, should the urgency of the symptoms not be subdued, Calomel in small doses, with or without Opium, will, in the majority of instances, be attended with great benefit. (Churchill.†) Inunction with mercurial ointment (Ung. Hyd. Fort. ʒij., Ext. Belladonnæ ʒij.) is recommended by Prof. Graves.‡

1427. *In active intractable Hæmorrhage*, Mercury, carried to slight salivation, has been highly spoken of. Dr. Latham mentions a case of Epistaxis, which resisted all ordinary remedies, but yielded immediately the mouth became sore. Dr. Southey also states that he has been taught by experience to rely upon Mercury almost as a specific for obstinate hæmorrhage, whether attended by inflammation or not. Dr. Watson§ adds, "Whatever may be the *modus operandi* of that mineral, the fact is certain, that hæmorrhage, which has resisted all other modes of treatment, has, in very numerous instances, ceased at once, upon the occurrence of a moderate degree of salivation."

1428. *In Dropsical Affections*, Mercury should be given with much caution. "When," observes Dr. Watson,‖ "Ascites is passive, where the distension of the peritonæum has crept on without pain, fever, or other marks of inflammatory action, our first and best hope of evacuating the fluid will rest upon diuretics. Drastic purges may also be employed. If these remedies fail, and we suspect hepatic disease, it will be proper to give the patient the chance of the remedial influence of Mercury." The disease being chronic, the introduction of the drug should be gradual. Dr. Baillie's is an eligible formula:—℞ Pil. Hydrarg. gr. v., Pulv. Scillæ gr. j., Pulv. Digitalis gr. ½, M. ft. pil. ter in die sumend. *In Hydrothorax and Hydrocephalus, the results of acute inflammation*, it is often of service. In dropsy depending upon granular disease of the kidney, it is injurious; and it should

* Guy's Hosp. Rep., No. v.
† Midwifery, p. 468.
‡ Clin. Lect., vol. ii. p. 293.
§ Lectures, vol. i. p. 258.
‖ Lib. of Med., vol. v. p. 154.

be administered with great caution to old persons, or to those greatly debilitated. *In Ovarian Dropsy*, it is of little service. *Hydro-pericardium* is sometimes successfully treated by Calomel carried slowly to salivation.

1429. *In mild cases of Influenza*, simple diaphoretic remedies and confinement to the house are generally all that is required; but in severe attacks, more active means must be employed, and of these, Dr. T. Davies found Mercury carried sufficiently far to render the gums slightly sore, the most efficacious treatment. (Watson.)

1430. *Dissection Wounds.* In the constitutional derangement attendant on dissection wounds, Mr. Adams* strongly advocates the use of Calomel internally; he considers that it annihilates the disease. In this view he is supported by Dr. Colles,† of Dublin. It should be given in such doses as to bring the system under its influence rapidly; and to attain this object, inunction should also be employed. Active purgation is also advised. Many instances are related in which it was used with decided benefit.

1431. *In Tetanus*, Dr. Morrison‡ advises the internal and external use of Calomel, in order to bring the system rapidly under its influence, and he speaks highly of its efficacy. Dr. Ligget§ also has recorded a case cured by ʒj. doses of Calomel. On the other hand, Larrey‖ states, that in the Egyptian campaign, it seemed to aggravate the disease; and in the Peninsular War it signally failed in the hands of Sir J. Macgregor¶ and others; indeed, Dr. Wells** mentions three instances in which Tetanus commenced while the patient was in a state of salivation. It is now almost universally considered, that in acute traumatic Tetanus, it has little, if any influence. *In Chronic Idiopathic Tetanus*, it appears occasionally to be useful.

1432. *In Hydrophobia*, Mercury has been strongly advised, both as a preventive and as a curative agent. It has been employed externally and internally by Dessault, Du Choisel, Audry, James, Sebig, Walther, Frank, Raymond, and others; but experience does not justify our placing any reliance on it, the establishment of salivation not apparently delaying the fatal termination.

1433. *In Plague*, Sir J. Macgregor reports favourably of Mercury carried to slight salivation. Under its use, he found the skin became softer, the pulse more regular, the eye more clear,

* Glasgow Med. Journ., Aug. 1830.
† Dub. Hosp. Rep., vols. iii. and iv.
‡ Essay on Tetanus, 8vo, 1816, p. 50.
§ Amer. Journ. of Med. Science, Jan. 1860.
‖ Mém. de Chir. Militaire, t. i. p. 257.
¶ Med. Chir. Trans., vol. vi. p. 454.
** Quoted by Dr. Watson, Lectures, vol. i.

the tongue more moist; and the thirst, together with the affection of the head and of the abdomen, entirely disappeared. The evacuations were rendered copious, and approached nearly to their natural colour. The experience of Bulard is unfavourable to its use. (Dr. Shapter.*)

1434. *Diseases of the Skin. In Psoriasis and Lepra*, Rayer† first proposed the external use of Calomel (ʒj. ad Adipis ʒj.); and so great was its success, that he regards it almost as a specific. He advises ʒj.—ʒiij. to be applied daily, and adds that he never saw it produce soreness of the gums. It has since been employed with marked benefit in various forms of *Porrigo, Herpes, Impetigo, Eczema, and other skin diseases.* Speaking of this ointment, Dr. Pereira‡ says, that if he were required to name a local agent, pre-eminently useful in skin diseases generally, he should fix on this.

1435. *In Onychia Maligna*, Mr. Wardrop§ employed Mercury in four cases. It was given in small doses at first, and afterwards increased so as to affect the gums in twelve or fourteen days. When ptyalism appeared, the sores in general assumed a healthy appearance, and the bulbous swelling gradually diminished.

1436. *In Acute Periostitis, unconnected with Syphilis*, Mercury is a remedy from which great benefit may be derived. After premising local or general abstraction of blood, Calomel and Opium may be given in sufficient doses to bring the constitution under mercurial influence. Even when salivation is established, relief from pain does not immediately follow; but the remedy should be persisted in, until the system is brought thoroughly under its influence, and then the pains will altogether disappear. (Dr. Graves.‖)

1437. *In obstinate cases of Hoarseness*, when inhalations and other measures fail in effecting a cure, Dr. Graves¶ considers that the sheet-anchor is Mercury, exhibited internally, and by means of inhaling the fumes of Hydrarg. c. Cretâ. When the mouth is slightly touched, the hoarseness will be found to yield.

1438. *In Headaches arising from biliary derangement, or a torpid state of the Bowels*, a few grains of Calomel, regulated by the age, strength, &c., of the patient, and by the severity of the symptoms, and followed at a short interval by a saline or other purgative, are often sufficient to effect a cure. The remedy should not be too often resorted to.

1439. *In obstinate Constipation*, Dr. Copland** says, that, since

* See Lib. of Med., vol. i. p. 213.
† On Diseases of the Skin, p. 77.
‡ Mat. Med., vol. i.
§ Med. Chir. Trans., vol. v. p. 138.
‖ Clin. Lect., vol ii. p. 492.
¶ Ibid., p. 3.
** Dict. Pract. Med., vol. i., art. Colic.

1817, he has found that, in the majority of cases treated by him, great and immediate advantage has been derived from a full dose of Calomel (either with or without Opium), followed in a few hours by f℥ss. of Ol. Terebinth., or Ol. Ricini. An enema containing a purgative or bland oil was, in most instances, also employed to assist the operation of the other remedies. *In Ileus, violent Colic, and Colica Pictonum*, a similar plan of treatment, but regulated to suit the severity of the case, is advised by Dr. Copland, and has generally been found effectual by those who have employed it. *In Lead Colic*, he combines the Calomel (℈j.) with Camphor (gr. x.) and Opium (gr. ij.). Few practitioners would be now disposed to give Calomel in so large a dose.

1440. CALOMELANOS PILULA COMPOSITA. Pilula Hydrargyri Chloridi Composita (Pharm. Lond.). Compound Calomel Pill, commonly called Plummer's Pill, is composed of Calomel, Sulphurated Antimony āā oz. j., Powdered Guaiac Resin oz. ij., and Castor Oil fl. oz. j. Triturate the two first together, add the two latter, and incorporate.

Med. Prop. and Action. A mild and valuable alterative, in doses of gr. v.—x. daily. May be substituted for Blue Pill or Calomel, when an alterative effect alone is desired.

1441. HYDRARGYRUM CORROSIVUM SUBLIMATUM. Corrosive Sublimate. Chloride of Mercury. HgCl. Hydrargyri Bichloridum. Bichloride of Mercury (Pharm. Lond.). Called also the Perchloride, the Hydrochlorate, the Muriate, and the Oxymuriate of Mercury. *Comp.* Mercury 73·8, Chlorine 26·2, in 100 parts; or 1 Eq. Mercury = 100 + 1 Chlorine 35·5 = 135·5, Eq. Wt.

Med. Prop. and Action. Alterative in doses of from gr. $\frac{1}{8}$ to $\frac{1}{2}$. In larger doses it causes much griping and purging; and, in large quantities, it is a powerful irritant poison. The smallest fatal dose is three grains, in the case of a child; the shortest period in which death followed is two hours. When swallowed, it produces corrosion of the stomach; and in whatever way it may obtain entrance into the body, it occasions irritation of that viscus, and of the rectum, inflammation of the lungs, and probably also of the heart, depressed arterial action, oppression of the functions of the brain, and inflammation of the salivary glands. (Christison.) In persons who have taken large quantities, it has been detected after death in the solids and fluids of the body. It appears to act powerfully upon the urinary organs, as in cases of poisoning by it the urine is extremely scanty in quantity, and after death the urinary organs are generally highly inflamed, whilst the bladder is extremely contracted. It has been said to be more difficult to produce salivation by Corrosive Sublimate than by any other salt of Mercury: indeed, Mr. Clay* states, that in an experience of twenty years, though he has pushed it to a great extent, both in adults and children, he has never been able to produce decided ptyalism by its use. Dr. Holland,† however, speaks highly of its

* Lancet, Aug. 21, 1841. † Medical Notes and Reflections.

efficacy. He states that he has seen its influence in augmenting the secretions, procuring the absorption of morbid growths, altering the state of the skin in many cutaneous disorders, and changing the character of morbid actions generally, in cases where he believes no other medicine, or combination of medicines, would have equal effect. He considers that it is as safe as Calomel. If it cause griping and purging, it should be combined with a small portion of opium. It may be given in the form of pills, or in solution (Liq. Hydrargyri Bichloridi, Ph. Lond.) (Corrosive Sublimate, Hydrochlorate of Ammonia āā gr. x., Distilled Water Oj.) in doses of fl. drm. ss.—fl. drm. j.—fl. drs. ij. in some bland fluid. Each fl. oz. j. contains ½ gr. of the salt. Externally it is used (gr. ½—ij. ad Aq. fl. oz. j.) as a collyrium or wash.

Dose of Corrosive Sublimate, gr. $\frac{1}{10}$—$\frac{1}{3}$.

It is contra-indicated.—1, in persons labouring under or strongly predisposed to pulmonary disease, as it occasionally gives rise to great irritation of the lungs; 2, in inflammatory states of the kidneys and urinary organs.

Incompatibles. Alkalies and their Carbonates; all Sulphurets; Acids, excepting Hydrochloric; Soap; Lime Water; Tartar Emetic; Iodides; Nitrate of Silver; Acetate of Lead; all vegetable astringent infusions; Albumen, and all albuminous solutions.

1442. *Therapeutic Uses. In Secondary or Constitutional Syphilis*, Corrosive Sublimate was first recommended by Van Swieten;* and was subsequently used on an extensive scale by Locher, of Vienna, who, in the course of eight years, cured 4,889 persons with this remedy. Prof. Graves† speaks highly of it, and recommends gr. ⅛ to be taken twice daily, and about ℈j of Ung. Hydrarg. to be rubbed in every night. Under this treatment, he states that the disease was cured much more rapidly and effectually than if Calomel, Blue Pill, or inunction alone, had been employed. A somewhat similar treatment has been successfully adopted by Biett, Dzondi, and others. One grain is divided into twenty-four pills; of these, one is given daily at first, and another is added every two or three days, until twenty-four or thirty-six are taken daily. In some apparently hopeless cases, this treatment effected a complete cure. The pills should not be given on an empty stomach, and their action should be carefully watched. *In Syphilitic Sore Throat*, when employed at an early stage, and in mild cases, Mr. Bacot found great benefit from the following gargle:—℞ Hyd. Corros. Sub. gr. j., Aq. f℥iv.—f℥vj., M. Its efficacy is increased by the addition of x.—xv. gutt. of Hydrochloric Acid. *In Syphilitic Eruptions*, baths containing this salt (℥ss. to each bath) are highly spoken of by Dr. Fricke.

1443. *In Gonorrhœa and Gleet*, the injection of a solution of this salt (gr. ½—½ ad Aq. f℥j.) often proves an effectual cure.

1444. *In Leucorrhœa*, Dr. Dewees‡ employed a solution of this salt (gr. ij. ad Aq. f℥j.), as a vaginal injection, with great advantage. It should be used only once a day, for the first two or three days; and subsequently two or three times a day, until

* Commentaries, vol. xvii.
† Clin. Lect., April 6, 1839.
‡ On Diseases of Females, p. 32.

heat and irritation occur, when lotions containing Lead will effect a cure. It is only applicable to chronic cases.

1445. *In Prurigo Pudendi*, a lotion composed of Corrosive Sublimate (gr. vj.), Liq. Calcis (fʒiij.—fʒiv.) is often effectual. Bateman* employed it with success; and Dr. Watson† speaks favourably of it.

1446. *Diseases of the Eye. In Scrofulous Ophthalmia*, Dr. Hamilton,‡ of Dublin, found Corrosive Sublimate, in doses of from gr. $\frac{1}{16}$ to $\frac{1}{8}$ in decoction of Bark, twice daily, very beneficial. The regimen, the state of the digestive organs, &c., should, at the same time, be carefully attended to.

1447. *In Catarrhal Ophthalmia*, Dr. Mackenzie's collyrium is very efficacious:—℞ Hyd. Corros. Sub. gr. j., Ammon. Hydrochlor. gr. vj., Aq. fʒviij., M., to be applied tepid several times daily. This is preparatory to the use of a solution of the Argent. Nit. (gr. iv. ad Aq. Dest. fʒj.), which is dropped into the eye once a day, or oftener. *In the purulent Ophthalmia of Infants*, the former of these lotions is very serviceable.

1448. *Hemeralopia, or Night Blindness*, was successfully treated by Dr. Smith§ with collyriums containing Corrosive Sublimate (gr. ij. ad Aq. fʒj.). This was dropped into the eye twice daily; and, at the same time, a blister was kept open on each temple. The only other remedies employed were mild aperients.

1449. *Diseases of the Skin. In Obstinate Scabies*, a solution of this salt (gr. xx.—gr. xxx. ad Aq. Oj.) is an application which rarely fails to effect a speedy cure. The fear of its becoming absorbed into the system, and producing constitutional effects, is groundless. The same lotion is the best which can be employed to destroy pediculi, commonly called *Crab-lice. To allay the intense itching in Pruritus Pudendi, Pruritus Scroti, Urticaria, Prurigo, and other Skin Diseases*, Mr. Erasmus Wilson‖ states that the lotion which he chiefly relies on is the following:—℞ Hydrarg. Corros. Sub. gr. v.—x., Spt. Rosmarini, Spt. Vini Rect. āā fʒj., Mist. Amygd. Amar. fʒvj., M. It is a very effectual formula. In *obstinate Eczema*, he applies a saturated solution of the Bichloride in Proof Spirit, by means of a camel's-hair pencil, to the diseased part, with the view of setting up a new action on the surface. He has found a similar application useful *in Favus. In Acne Simplex, Acne Rosacea, Ephelis, and Porrigo*, the emulsion advised for Pruritus (*ante*) is also recommended as a good local stimulant. *In Sycosis*, Dr. Wright¶ found much benefit from the following lotion:—℞ Hydrarg. Corros. Sub. gr. ij., Acid Hydrochlor. mij., Aq. fʒviij., M. Alkalies were administered internally at the

* Synopsis of Diseases of the Skin. p. 24.
† Lectures, vol. ii.
‡ Dublin Journ., July 1840.
§ Edin. Med. Journ., vol. lxxiv.
‖ Diseases of the Skin, p. 159, et seq.
¶ Clin. Lect., Med. Times, vol. xvi.

same time. *In obstinate Pityriasis*, the internal use of this salt is stated by Dr. Green * to have succeeded when other remedies have failed. *In Psoriasis*, its internal exhibition, in doses of gr. $\frac{1}{16}$, combined with Cinchona and Sarsaparilla, is favourably spoken of by Sir Philip Crampton;† the Citrine ointment to be applied locally at the same time. *To Onycha Maligna*, a strong solution has occasionally been locally applied with advantage, but it is inferior to Liquor Arsenicalis or T. Iodi. *To Corns*, an alcoholic solution of this salt was recommended by Mr. Wardrop.‡ He directs the foot to be previously well soaked, and the corn pared down. One or two applications are said to be sufficient to complete the removal. *In Frambœsia, or Yaws*, the internal administration of Corrosive Sublimate, in doses of gr. $\frac{1}{10}$—$\frac{1}{8}$, is thought highly of by some West Indian practitioners; and, although it is occasionally productive of benefit, it appears to be very inferior to the Iodide of Potassium (Maxwell). *To remove the Blueness of the Skin occasioned by a prolonged use of the Nitrate of Silver*, Mr. Erasmus Wilson § suggests the use of washes containing Corrosive Sublimate. *In Erysipelas*, Dr. Dewees states that a solution of this salt (gr. j. ad Aq. fʒj.) is as effectual a local application as the mercurial ointment. *In Erythema*, Dr. Bateman ‖ prescribes a lotion composed of gr. x. of Corrosive Sublimate, in fʒvj. of Lime Water.

1450. *In Cancer*, observes Dr. Copland,¶ the preparations of Mercury are always injurious, when exhibited in any other manner than as an alterative; and externally as an astringent and stimulating wash. Corrosive Sublimate, in minute doses, internally, with the Hydrochlorate of Ammonia, or the compound decoction of Sarsaparilla, or with Guaiacum, is often of service, at least in retarding the progress of its early stage; and when the disease has advanced to ulceration, the external use of Corrosive Sublimate with the Hydrochlorate of Ammonia, Lime Water, &c., may occasionally be of some service. Thus prescribed, it has received the approbation of Mosely, Gooch, Gmelin, Sir Astley Cooper, and others. Salivation should be always carefully avoided.

1451. *Other Diseases.* *In Epilepsy*, M. Merat** states, that for a period of thirty years, he has used the following pills with evident benefit:—℞ Hydrarg. Corros. Sub. gr. $\frac{1}{15}$, Camphor. gr. j., Opii gr. $\frac{3}{4}$, Moschi gr. $\frac{1}{2}$, M. ft. pil. This pill is to be taken daily at first, and the quantity of the salt increased, as the patient can bear it. He considers gr. ss. daily as much as is beneficial in any case.

* Comp. of Dis. of the Skin, p. 236.
† Med. Times, vol. xv. p. 234.
‡ Medico-Chir. Trans., vol. v. p. 140.
§ Op. cit., p. 358.
‖ Synopsis, op. cit., p. 167.
¶ Dict. Pract. Med., vol. i. p. 287.
** Revue Médicale, Oct. 1844.

1452. *In Scrofula*, Mr. Balman* states that he has given Corrosive Sublimate in doses of gr. $\frac{1}{16}$—$\frac{1}{20}$, twice or thrice daily, and that he has seen it of use in *Glandular Swellings, complicated with obstinate scaly Skin disease, particularly Psoriasis.* Under these circumstances, provided the health be good, he thinks the salt may be given with advantage. In irritable subjects, he found it hasten the process of suppurative inflammation.

1453. *In Acute Hydrocephalus*, Corrosive Sublimate, in doses of from gr. $\frac{1}{30}$ to $\frac{1}{16}$, has proved successful in the hands of Dr. Merriman and some others. It has the effect of producing copious olive-green stools, and an increase of the urinary secretion. Dr. Weisse relates one almost hopeless case, which yielded to $\frac{1}{12}$ of a grain every two hours. It appears to have no advantage over Calomel (q. v.).

1454. *In the profuse Perspirations which occur in the second stage of Acute Rheumatism*, Dr. Greiner, of Leipsic, recommends the internal use of a solution of this salt (gr. j. ad Aq. ℥j.), in doses of gutt. xv., thrice daily. It should not interfere with other remedies. *In Rheumatic Gout*, Trousseau† found much benefit from baths, each containing the Bichloride ℥ss. and Hydrochlorate of Ammonia ℥j.

1455. *In Dropsical Affections arising from Disease of the Heart, Liver, or Lungs*, Corrosive Sublimate is occasionally very efficacious. Dr. Pereira‡ states that, under its use, he has repeatedly seen dropsical symptoms disappear. He advises from f℥ss. to f℥j. of the solution (*ut supra*) every six hours; and adds, that he has given it many days, or even weeks, without affecting the mouth.

1456. *In Hypertrophy of the Uterus*, Dr. Oldham§ strongly advises the internal use of Corrosive Sublimate, in doses of f℥j.—f℥ij. of the solution (Ph. L., *ut supra*) two or three times daily, in combination with a vegetable tonic or chalybeate. It rarely salivates. The reduction of an indurated womb is generally slow, but under the persevering use of this remedy, he states that six or eight weeks will suffice to absorb and soften a considerable hypertrophy. Blistering the sacrum or inguinal regions greatly promotes the reduction.

1457. HYDRARGYRUM CUM CRETÂ. Mercury with Chalk. Grey Powder. *Prep.* Rub 1 oz. of Mercury with 2 oz. of Prepared Chalk, until globules are no longer visible. Gr. iij. contain gr. j. of Mercury.

Med. Prop. and Action. Alterative in doses of gr. j.—iij.; aperient, gr. v.—xv. for adults, gr. j.—v. for children. It is rendered slightly antacid by the

* Med. Gaz., Aug. 22, 1851.
† Journ. de Méd. et de Chir. Prat., Nov. 1861.
‡ Mat. Med., vol. i. p. 936.
§ Guy's Hosp. Reports, Oct. 1848.

presence of the Chalk. It may be combined with Pulv. Rhei, Pulv. Cinnam., and also with alkalies; it is a mild, unirritating form, and particularly adapted for children. It should be given in sugar, syrup, or some viscid fluid.

Dose, gr j.—iij.; as an aperient, gr. v. upwards.

It is incompatible with Acids and Acidulous Salts.

1458. *Therapeutic Uses. In the Diarrhœa and Dysentery of Children*, when the stools are clay-coloured, or composed of slime and blood, the following formula is particularly useful:—℞ Hyd. c. Cret. gr. ij.—iij., Pulv. Aromat. vel P. Cretæ Aromat. gr. iij., M. ft. pulv. bis in die sumend. Dr. Watson* prescribes the following powder:—℞ Hyd. c. Cret. ʒss., Pulv. Cretæ Co. (Pharm. Lond.), Sodæ Carb. Exsic. āā ʒj., M. Dose, gr. iij.—v. thrice daily. He advises its use particularly when *Aphthæ* exist in the mouth, Borax being used as a local application.

1459. *In the Diarrhœa of Phthisis*, half-grain doses of Hyd. c. Cret. are occasionally effectual in checking the discharge.

1460. *In Gastric Remittent Fevers of Children*, Hyd. c. Cret. given every night or every other night, in combination with Ipecacuanha, and followed in the morning by a dose of Ol. Ricini, has been found very useful. (Locock.†)

1461. *In Syphilis Infantum*, Hyd. c. Cret. is the best form of Mercury for internal use. It may be continued for a considerable period, without giving rise to gastric irritation. *In Syphilis in the Adult*, Mr. Acton, Mr. H. Smith, and others, prefer Hyd. c. Cret. to the stronger forms of Mercury.

1462. *Infantile Jaundice* is best treated with the formula recommended by Dr. Watson in Diarrhœa, with an occasional dose of Castor Oil. (Copland.)

1463. HYDRARGYRI CYANIDUM. Cyanide of Mercury. HgCy. Hydrargyri Bicyanidum, Percyanidum, vel Cyanuretum. The Bicyanide, Percyanide, or Cyanuret of Mercury. Called also Prussiate of Mercury. *Comp.* Mercury 79·6, Cyanogen 20·4, in 100 parts; or 1 Eq. Mercury = 100 + 1 Eq. Cyanogen = 26 = 126 Eq. Wt.

Med. Prop. and Action. Alterative.

Dose, gr. $\frac{1}{15}$, gradually increased to $\frac{1}{4}$.

1464. *Therapeutic Uses. In Primary and Secondary Syphilis*, it has been employed by the French practitioners, who consider it preferable to Corrosive Sublimate, from its being less liable to produce gastric irritation. The following formulæ are advised by M. Parent. *For internal use*:—℞ Hyd. Bicyan. gr. vj., Pulv. Opii gr. xij., mic. panis q. s. ft. pil. xcvj. Dose, j. or ij. twice or thrice daily. *Gargle for Syphilitic Sore Throat*:—℞ Hyd.

* Lectures, vol. i. p. 802. † Lib. of Medicine, vol. i. p. 385.

Bicyan. gr. x., Infus. Lini Oj., M. Ointment for *Syphilitic Eruptions and Ulcers*:—℞ Hyd. Bicyan. gr. xij , Adipis ʒj., M. *Solution for external use*:—℞ Hyd. Bicyan. gr. vj.—x., Aq. Oj., M. *In Syphilitic Eruptions*, the solution and ointment have proved highly serviceable, particularly in that form of Herpes designated by Alibert *H. squamosus*, the distressing irritability of which it greatly relieves.

1465. HYDRARGYRI IODIDUM RUBRUM. Red Iodide of Mercury. HgI. Hydrargyri Iodidum vel Biniodidum. Iodide or Biniodide of Mercury. Called also the Periodide of Mercury. *Comp.* Mercury 44·25, Iodine 55·75, in 100 parts; or 1 Eq. Mercury = 100 + 1 Iodine = 126 = 226, Eq. Wt.

Med. Prop. and Action. Alterative, stimulant, and deobstruent, in doses of gr. $\frac{1}{6}$, gradually increased to $\frac{1}{4}$, in the form of pill or dissolved in alcohol. In its irritant properties it resembles Corrosive Sublimate. Its effects on the system are similar to those of the Green Iodide, but it is much more irritant in its action. In long-continued doses it produces salivation. It requires to be given with great caution, and to be discontinued if it cause much irritation. Left in contact with the skin, it causes inflammation; and when applied in the form of ointment to ulcerated surfaces, it occasions great pain and irritation.

Offic. Prep. Unguentum Hydrargyri Iodidi Rubri (Red Iodide of Mercury gr. xvj.; Simple Ointment oz. j). This ointment contains one-fourth as much of the Red Iodide as the Ung. Hyd. Iod. Rub. of the Pharm. Dub.

Dose of the Iodide, gr. $\frac{1}{10}$—$\frac{1}{4}$.

1466. *Therapeutic Uses. In Secondary and Constitutional Syphilis*, Dr. Octavius Royle* considers this the best form of Mercury which can be used. He advises it in doses of gr. $\frac{1}{2}$, twice daily, in the Extract of Gentian, and administers at the same time fʒj. of Mist. Guaiaci. He continues this till a decided impression is produced, and the gums become slightly sore. *In Syphilitic Eruptions of the Skin*, a weak ointment of this salt (gr. viij.—xij., Adipis oz. j.) is very efficacious; but the pain which it sometimes occasions is an objection to its use. *In Acne Syphilitica* it is highly spoken of by Dr. Todd;† a cold douche vapour-bath being used at the same time.

1467. *In Bronchocele*, the Red Iodide is one of the best applications we possess. The great success which attended its use in India by Capt. Cunningham, of the 12th Cavalry, first attracted attention to it; and the evidence adduced by Dr. F. Mouat‡ established its claims beyond a doubt. It has since been used both in India and in Europe with great success. The strength originally proposed (ʒix. ad Ung. lb. iij.) has, however, been found far too powerful for ordinary use. It was directed to be

* Med. Times, vol. xviii. p. 169.
† Cyc. Pract. Med., vol. i. p. 23.
‡ Indian. Ann. of Med. Sci., 1857, vol. iv. p. 436.

rubbed in for ten minutes in the morning, and the patient to be exposed to the sun's rays as long as they could be endured. Dr. Frodsham* tried to substitute artificial heat for the sun's rays, but found it ineffectual. *In Elephantiasis Arabum* it is favourably spoken of by Mr. F. Day,† of Cochin: he found the ointment (*ante*) far too strong, and substituted a weaker one (gr. j. ad Ung. ʒv.): even this causes at first slight irritative fever and augmentation of the size of the limb, but as these subside improvement soon becomes manifest. The strength of the ointment may be gradually increased. My own trials with Mr. Day's ointment in Elephantiasis have been most satisfactory.

1468. *In other Cutaneous Diseases*, it also occasionally proves useful. Dr. Neligan‡ found great benefit from it in *Pityriasis*. Rayer§ speaks highly of it in inveterate *Psoriasis;* and in a case of *Carcinomatous Ulcer of the Face*, Dr. Brescht ‖ effected a cure by an ointment composed of 1 part of the salt to 7 of lard. *In Lupus* the Red Iodide is favourably spoken of as a local application by Mr. M'Whinnie.¶ The following is the formula he recommends:—℞ Hyd. Biniod. ʒj., Adipis ʒij., Emp. Ʊpii ʒvj. The consequent swelling and pain are to be relieved by emollient poultices.

1469. *In Chronic Glandular Enlargements and other Tumours probably of Strumous origin*, the ointment of the Red Iodide has been found of striking benefit by Dr. M. T. Sadler,** and others. Dr. Sadler has also found it useful in promoting the removal of gouty deposits in the neighbourhood of joints.

1470. *In Epilepsy*, Dr. Fuller†† found the Red Iodide most serviceable, especially in cases where there was reason to suppose that the disease depended upon thickening of the dura mater. His formula is an extemporary one, formed by dissolving Potass. Iod. gr. v.—x. in Liq. Hydrargyri Bichloridi (Pharm. Lond.) fʒj.—fʒij. Given thus in solution, it becomes readily absorbed, and speedily produces its specific effects. The exact dose of the above solution is not stated.

1471. *In obstinate cases of Ophthalmia Tarsi*, and in *Opacity of the Cornea*, a thin ointment (gr. ij., Cerate ℈ij., Oil ℈j.) is stated by Pereira to have been successfully employed. It should not be used until other remedies have failed.

1472. Hydrargyri Iodidum Viride. Green Iodide of Mercury. Hg_2I. Called also the Sub-iodide, the Proto-

* Lancet, June 2, 1860.
† Madras Quart. Med. Journ., July 1860, p. 51.
‡ Dublin Quart. Journ., Nov. 1849.
§ Diseases of the Skin, p. 225.
‖ Appendix to Trans. of Lugol on Iodine, pp. 204-5.
¶ Med. Times and Gaz., Oct. 20, 1855.
** Lancet, Dec. 12, 1863.
†† Med. Times and Gaz., Feb. 14, 1857.

iodide, and the Iodide of Mercury. A compound of Mercury 61·35, Iodine 38·65, in 100 parts; or 2 Eq. Mercury = 200 + 1 Iodine = 126 = 326, Eq. Wt.

Med. Prop and Action. Alterative and stimulant. In long-continued doses it occasionally produces salivation, and, in large quantities, proves an irritant poison. Externally, it is applied in the form of ointment (oz. j., Wax oz. ij., Lard oz. vj.).

Dose, gr. j.—gr. iij., in the form of pill.

1473. *Therapeutic Uses. Syphilis.* In primary syphilitic sores occurring in strumous habits, and also in constitutional Syphilis, the Green Iodide of Mercury has been extensively and successfully employed.* M. Cullerier's formula is as follows:—℞ Hyd. Iod. (Vir.) gr. xij., Opii gr. vj., Gum Guaiac. ʒj., M. ft. pil. xxiv., cap. j. nocte maneque. Externally, at the same time, he employs the ointment (ʒj. ad Adipis ℥j.). Numerous cases of *Syphilitic Ulcerations and Eruptions*, successfully treated by this remedy, are recorded by Biett, Breschet, and others.† Dr. Schedel‡ remarks, "Of its good effects too much cannot be said." It should be given internally and externally, but not to such an extent as to cause salivation; if this appear in the slightest degree, the medicine should be immediately discontinued. *In Syphilitic Ulcerations of the Throat*, Dr. Schedel recommends them to be slightly touched two or three times a day, with a liniment composed of gr. xx. of the Green Iodide in ℥ss. of Honey.

1474. *Skin Diseases. In Lupus*, Dr. Houghton§ states that he derived great benefit from this salt, the ulceration having, in some instances, healed with a rapidity quite foreign to its indolent nature. He administered it internally, in doses of gr. ¼—½, twice daily. *In Pityriasis, Eczema, Herpes, Impetigo, and other diseases of the Scalp*, occurring in children, Dr. Neligan‖ derived great benefit from the following formula:—℞ Hyd. Iod. (Vir.) gr. ss., Hyd. c. Cret. gr. ij., Pulv. Aromat. gr. ij., M. To a child of six years old this may be given every morning; or if not more than three years old, half the quantity may be given twice a week. To infants it should not be given. *In Rupia, Lepra, and Psoriasis*, it was successfully employed externally (gr. xij.—ʒj. ad Ung. ʒj.), by Biett; and *in Acne Rosacea, Mentagra, and Tuberculous diseases of the Skin*, by Rayer. Its internal administration greatly aids its external use. *In Bronchocele*, Porta¶ strongly advises an ointment composed of gr. v. of the Green Iodide in ʒj. of Lard. It is inferior to the Red Iodide (which see).

1475. *In Tic Douloureux and other Neuralgic Affections*, an

* Parker on Syphilis.
† App. to O'Shaughnessy's Trans. of Lugol, p. 201, et seq.
‡ Lib. of Med., vol. i. p. 429.
§ Cyc. Pract. Med., vol. iii. p. 180.
‖ On Diseases of the Scalp, 8vo, 1848.
¶ Brit. and For. Med. Chir. Rev., Jan 1851.

ointment composed of ℈ij. of the Green Iodide and ʒj. of Lard, is strongly recommended by Mr. J. Scott as a remedy of great efficacy.

1476. *In some Chronic Diseases of the Liver, especially Induration of that Organ*, the Green Iodide may be employed externally or internally, or both, with every prospect of benefit. It should not be given to such an extent as to produce ptyalism.

1477. HYDRARGYRI NITRATIS LIQUOR ACIDUS. Acid Solution of Nitrate of Mercury. Nitrate of Mercury, HgO,NO_5, in solution in Nitric Acid. Solution of the Pernitrate of Mercury. Prepared by dissolving 4 oz. of Mercury in a mixture of 3¼ fl. oz. of Nitric Acid and 3 fl. oz. of Distilled Water. The solution is to be boiled gently for fifteen minutes, cooled, and preserved in a stoppered bottle. Sp. Gr. 2·246.

Med. Prop. and Action. Powerful caustic and escharotic; never employed internally. It should be applied to a space about 1 or 1½ inch in diameter, by means of a brush; and lint, moistened with the solution, is then applied. An ulcerated surface thus dressed becomes immediately white; a kind of erysipelatous inflammation is set up in the surrounding parts; and in a few days a yellow scab gradually falls of. (Pereira.) The local application has been known to produce salivation.

Offic. Prep. Unguentum Hydrargyri Nitratis. (See art. HYDRARGYRI NITRATIS UNGUENTUM.)

1478. *Therapeutic Uses. In obstinate Skin Diseases*, it has been found a valuable escharotic. *In Lupus*, it has been successfully employed by Biett, Cloquet, Richeraud, &c.; and *in Herpes Exedens, Scrofulous and Syphilitic Sores, and in aggravated cases of Lepra and Psoriasis*, its local application has been attended with the best effects. It is too powerful an irritant for ordinary cases. Delpech* employed it as a caustic to *primary Chancres*.

1479. *In Ulceration of the Cervix Uteri*, this Acid Nitrate has been employed as a caustic. Lisfranc† instituted a series of experiments as to the relative value of the Nitrate of Silver and the Acid Nitrate of Mercury in these cases. He states the results of 75 ulcerations of the Cervix Uteri. In 44, the Nitrate of Silver was employed, and in 31, a discharge of blood followed the application. In 28, the Acid Nitrate of Mercury was used, and there was a discharge of blood in three cases only. On the whole, he prefers the Mercury. Dr. J. H. Bennett‡ considers Argent. Nit. preferable in mild cases, but in severe ones he speaks highly of the Nitrate of Mercury.

1480. HYDRARGYRI NITRATIS UNGUENTUM. Ointment of the Nitrate of Mercury. Citrine Ointment. A substitute

* Chir. Clinique, t. i.
† Brit. and For. Med. Rev., July 1842.
‡ On Inflammation of the Neck of the Uterus, p. 145.

for the Golden Eye Ointment. *Prep.* Dissolve 4 oz. by weight of Mercury in 8 fl. oz. of Nitric Acid with the aid of a gentle heat; add the solution to 15 oz. of Prepared Lard, and 32 fl. oz. of Olive Oil, previously melted together by a steam or water bath, and mix thoroughly. If the mixture do not froth up, the heat is to be increased until this occurs. This preparation keeps much better than that of the Pharm. Lond.

Med. Prop. and Action. A valuable stimulant application. It may be diluted to any degree.

1481. *Therapeutic Uses. Diseases of the Skin. In Pemphigus Gangrenosus*, it is strongly recommended by Dr. M'Adam,* together with the internal exhibition of the decoction of Cinchona. *In Lepra, Psoriasis, and other squamous Diseases*, it is highly spoken of by Rayer, E. Wilson, and others. *In Sycosis*, it is often productive of marked improvement. *In Impetigo, and in all forms of Porrigo*, when unattended by inflammation, it proves highly serviceable. *In Ringworm*, the strong ointment, rubbed for some minutes over the affected surface, twice daily, is often effectual in removing the disease. *In Chloasma*, and also *in Favus*, it has been used with advantage. In these and other skin diseases, the use of the ointment should be preceded by emollient poultices, the strength of the ointment being regulated by the feelings of the patient, as it should never be employed of a strength to cause pain; alteratives should be administered, the bowels carefully regulated, and strict cleanliness enforced.

1482. *In Pruritus Scroti*, it is highly spoken of by Dr. Bowling (U.S.).† He advises the parts to be sponged with vinegar previous to its application. By these simple means he states that for fifteen years he has not failed in a single case to effect a permanent cure. *In Pruritis Ani*, it may also be used with advantage, combining it with the internal exhibition of Confect. Piperis.

1483. *To irritable Ulcers*, Sir Astley Cooper‡ advises the following ointment:—℞ Ung. Hydrarg. Nit., Ung. Cetacei ʒss., Pulv. Opii ʒj., M. ft. unguent. *To chapped Hands and Lips*, the diluted ointment is a valuable application.

1484. *In Ophthalmia Tarsi, Granular Conjunctivitis, &c.*, one of the most efficient applications is Ung. Hyd. Nit.; of which a small piece may be mixed with an equal weight of Almond Oil, and applied to the edges of the lids, at bedtime. The bowels and general health should be carefully attended to.

1485. HYDRARGYRI OXIDUM RUBRUM. Red Oxide of Mercury. HgO. Hydrargyri Nitrico-Oxidum. Nitric Oxide of

* Dublin Med. and Phys. Essays, vol. i. p. 307.

† Note in Watson's Lectures, vol. ii. p. 840.

‡ Lectures, vol. i. p. 194.

Mercury (Pharm. Lond.), called also the Binoxide and Peroxide of Mercury and Red Precipitate, one of the most poisonous preparations of Mercury.

Med. Prop. and Action. Stimulant and escharotic. It is never given internally, but is extensively used externally, in the form of ointment. This, applied to extensive ulcerated surfaces, occasionally causes ptyalism. As an escharotic, it is occasionally applied alone, or mixed with sugar, to *Specks in the Cornea*, over *Excrescences*, *Chancres*, and *Fungous Ulcers*. (Garrod.*)

Offic. Prep. Unguentum Hydrargyri Oxidi Rubri (Finely powdered Red Oxide of Mercury grs. lxiv.; Simple Ointment oz. j.). Known as Red Precipitate Ointment.

1486. *Therapeutic Uses. In Indolent Syphilitic Ulcerations*, the Red Precipitate ointment is an excellent dressing, stimulating the surface, improving the quality of the discharge, and apparently hastening the healing process. It should not be applied to too large a surface at once, or the salt may become absorbed into the system, and induce salivation. A case of this description happened in my practice. *To Flat Ulcers of the Rectum* which exist just within the anus, Mr. Coulson† advises the use of the following ointment:—℞ Hyd. Nit. Oxid. ʒj., Ung. ℥j., M. The bowels to be kept open.

1487. *In the Ulcerations of Rupia*, the ointment has often an excellent effect. The scabs should be first loosened and removed by soft emollient poultices, and the ulcers then dressed with the ointment spread on lint.

1488. *In Frambœsia or Yaws*, temporary advantage is said to result from the local application of the Red Precipitate ointment; but the ulcers relapse into their former indolent state when the remedy is discontinued. It is of very doubtful utility.

1489. *In Ophthalmia Tarsi, Chronic Conjunctivitis, and in some Chronic Affections of the Eye*, a small portion of the ointment smeared over the edges of the eyelids at bedtime is attended with great benefit. *In Purulent Ophthalmia*, according to Dr. De Condé,‡ it is often sufficient of itself to arrest the disease when employed early. He uses an ointment composed of four parts of Red Precipitate to fifteen of Lard and fifteen of Linseed Oil. He regards it as the best remedy in the *Ophthalmia of New-born Infants*.

1490. *In Favus*, Mr. E. Wilson speaks favourably of the ointment (*ante*) diluted with an equal weight of simple cerate.

1491. *In Otorrhœa after Scarlet Fever*, M. Trousseau§ strongly advises an application composed of twenty-five parts of the Red Oxide, five of Almond Oil, and five of Lard. The external meatus is first washed out, and well dried, and the above introduced twice daily. Care should be taken to keep the tissues moist in the intervals with Olive Oil.

* Ess. Mat. Med., p. 91.
† Lancet, Aug. 17, 1861.
‡ Ann. d'Oculistique, 1858, vol. xl.
§ Journal de Méd. et de Chir., Oct. 1850.

1492. HYDRARGYRI PILULA. Mercurial Pill. Blue Pill. Prepared by rubbing together 2 oz. of Mercury and 3 oz. of Confection of Roses until metallic globules are no longer visible, and then adding 1 oz. of Liquorice Root in fine powder, and mixing the whole well together. A mild and excellent form for internal use: gr. iij. contain gr. j. of Mercury.

Med. Prop. and Action. Alterative, in doses of gr. j.—ij.; purgative, in doses of gr. v.—x. It is one of the best forms for inducing salivation when it is not an object rapidly to affect the system; for this purpose gr. v. may be given every night and morning, combined with a small portion of Opium, to prevent its passing off by the bowels. Combined with Calomel, it is stated greatly to increase the activity of the latter. On the whole, it may be considered as one of the most useful forms of Mercury for internal use.

Dose, gr. j.—x.

1493. *Therapeutic Uses. In Bilious derangements, and Disorders of the Chylopoietic Viscera*, the practice of giving, almost indiscriminately, a Blue Pill (gr. v.) at night, and following it up in the morning by a Senna draught, was adopted by the late Mr. Abernethy; and, however beneficial may be the results when judiciously administered, its indiscriminate and ordinary use is justly condemned by the highest authorities of the present day, as the source of innumerable evils.

1494. *In Dyspepsia*, attended with hepatic derangement, or where there is reason to suspect the duodenum to be the seat of disease, Blue Pill (gr. ij.—iv.) is occasionally productive of great benefit. It should not be given in such doses, or in such a manner, as to produce ptyalism; and it may be advantageously combined with Ipecacuanha (gr. j.—ij.) and with a sedative.

For other Diseases, see Calomel, for which it may be substituted when speedy salivation is not necessary to be induced.

1495. HYDRARGYRI SUB-OXIDUM. The Sub-oxide of Mercury, Hg_2O, called also the Oxide, the Grey and the Black Oxide of Mercury, is a compound of Mercury 96·15, Oxygen 3·85, in 100 parts.

Med. Prop. and Action. The least irritating of the Salts of Mercury; is rarely employed internally, on account of the varying proportion of the mineral. Occasionally it is used as a fumigation (gr. lx.—gr. cxx.), or in the form of ointment (gr. lx. ad Adipis gr. ccxl.—ccclx.). It is also used in the form of *Black Wash, or Lotio Nigra* (Calomel. gr. lx., Aq. Calcis Oj.), a mild, unirritating, useful application.

Dose, gr. ½—gr. iij.

1496. *Therapeutic Uses. To Chancres and Syphilitic Sores of all kinds*, the Black Wash (*ut supra*) is a most serviceable application. It should be applied fresh on linen or lint several times a day, and the mixture should be well shaken before each application.

1497. *In Cancrum Oris*, the Black Wash, locally applied, is occasionally signally beneficial. It should be used chiefly in the earlier stage of the disease, and the ulcer should be frequently cleansed with the lotion.

1498. HYDRARGYRI SUBSULPHAS FLAVUS. The Yellow Subsulphate of Mercury, 3 HgO, SO_3, commonly called Turbith, or Turpeth Mineral, a compound of Oxide of Mercury 89·01, Sulphuric Acid 10·99, in 100 parts.

Med. Prop. and Action. Alterative; but it is too irritating for internal use. It has been used as an errhine.

Dose, as an alterative, from gr. ¼ to ½; emetic, gr. iv.—v.

1499. *Therapeutic Uses.* Very limited. It has been given as an emetic in cases of *Swelled Testicle*, to promote absorption by its nauseating and emetic action. As an errhine, it has been administered in *Chronic Ophthalmia, and affections of the Brain, as incipient Hydrocephalus;* as an alterative, it has been given in *Lepra*, *Psoriasis*, and other scaly diseases. (Pereira.)

1500. HYDRARGYRI SULPHURETUM. Sulphuret of Mercury. HgS. Hydrargyri Bisulphuretum. Bisulphuret of Mercury (Pharm. Lond.). Called also the Sulphide, the Red or Crystallized Sulphuret of Mercury, Cinnabar, Minium, or Vermilion. *Comp.* 1 Eq. Mercury = 100 + 1 Sulphur = 16 = 116, Eq. Wt.

Med. Prop. and Action. Supposed to be alterative, when given internally to the extent of gr. x.—gr. xxx.; but it is very rarely employed. Its chief use is for fumigation, for which purpose gr. xxx. may be used. It should be heated on an iron plate and placed under the patient, who is to be covered with a blanket.

1501. *Therapeutic Uses. Venereal Ulcers in the Throat and Nose* often improve and assume a healthy appearance under the use of Cinnabar fumigations. Should no proper inhaling apparatus be at hand, Pereira advises the Sulphuret to be placed on a heated shovel, and the fumes inhaled through a funnel. It has the disadvantage of occasionally creating much irritation and violent cough; hence it should be avoided by persons who are labouring under Phthisis or chronic pulmonary disease.

1502. *In Acne Syphilitica*, the most efficacious application is stated by Dr. Todd* to be local fumigation with Cinnabar. From gr. lx.—gr. cxx. may be sublimed (*ut supra*), and directed on the part by a suitable apparatus.

1503. *In obstinate Prurigo of the Hands*, Biett successfully employed the following ointment:—℞ Hydrarg. Bisulph. ʒij., T. Opii fʒij., Sulph. Sublim. ʒss., Adipis ʒv, M. (E. Wilson.)

* Cyc. Pract. Med., vol. i. p. 32.

1504. HYDRARGYRI SULPHURETUM CUM SULPHURE. Sulphuret of Mercury with Sulphur. Æthiops Mineral. A compound of Sulphuret of Mercury 58, Sulphur 42, in 100 parts.

Med. Prop. and Action. Alterative.

Dose, gr. v.—ʒss. It is almost inert.

1505. *Therapeutic Uses. In Scrofulous Affections*, it was formerly administered internally, and it has been employed by Mr. Serres in *Typhus Fever*. He gave it in doses of gr. xv.—ʒss. daily, together with mercurial inunction, until salivation ensued. It has no advantage over Calomel, except that, being less active, it would do less harm. The mercurial treatment of fever is now entirely abandoned. (See sect. 1377.)

1506. HYDRARGYRI UNGUENTUM. Mercurial Ointment. Called also Blue or Neapolitan Ointment. Composed of Mercury lb. j.; Prepared Lard lb. j.; Prepared Suet oz. j.; thoroughly incorporated.

Med. Prop. and Action. Chiefly used externally, either as a local or constitutional remedy. (See *Inunction.*) In Germany, it is given internally in the form of pill, from the idea that it induces salivation more speedily than any other form of Mercury. It may be applied externally in a diluted form. *Ung. Hyd. Mitius* (Ung. Hyd. lb. j., Adipis lb. ij.), or in the form of *Compound Cerate* (Ung. Hyd., Cerat. Sapon. Comp. (Pharm. Lond.) ää oz. iv., Camphor oz. j.). Inunction with Ung. Hydrarg. is a most valuable adjunct to the internal use of Mercury.

1507. *Therapeutic Uses. In Syphilis*, the introduction of Mercury into the system by inunction is strongly advised by Sir B. Brodie; but it has not been generally adopted on account of its uncleanliness and other inconveniences. (See sects. 1366, 1367.)

1508. *In Pneumonia of Infants*, Dr. West speaks highly of the value of mercurial inunction, when the internal use of the mineral causes purging. (See sect. 1386.)

1509. *In Erysipelas*, the local application of Ung. Hyd. was first advocated by Dr. McDowel,* of Dublin. He directs the inflamed parts to be smeared over with the ointment, and states that three or four applications generally suffice to arrest the progress of the disease. In most cases, it causes salivation. Rayer† declares it to be utterly useless.

1510. *In Small-pox*, to prevent pitting, the local application of Ung. Hyd. has been advised by Bricquet, Zimmermann, Serres, Velpeau, Rosen, and others. More recently, Prof. Bennett‡ relates a very severe case of confluent Small-pox treated with this ointment; and he states that its good effects, in locally modifying the intensity of the inflammation, and preventing cicatrices, were unequivocal. This treatment, however, is not

* Dublin Journ. of Med., vol. vi.

† Diseases of the Skin, op. cit.

‡ Clin. Lect., Monthly Journ. of Med. Sciences, Jan. 1850.

devoid of danger; as, in a case related by Dr. G. Paterson,* excessive and dangerous salivation followed its application.

1511. *In Cancer*, M. Tranchon† advises the external use of Pomade de Vigo, a preparation similar to Emp. Hyd. c. Ammoniaco (L. Ph.); but the weight of evidence is decidedly opposed to the use of Mercury in any form, in this disease.

1512. *In Subacute Ovaritis*, Dr. Tilt‡ speaks highly of frictions of mercurial ointment, combined with Camphor and Belladonna, over the seat of disease. In some instances, improvement occurs in a few days, in others in six or eight weeks. He speaks highly of its efficacy. He recommends the following formula:—℞ Ung. Hydrarg. ʒij., Ext. Belladon. ʒj., Ceræ ʒij., Adipis ℥j., M. Warm-water enemas, and gentle aperients (Castor-oil), should accompany this treatment.

1513. *In Indurations and Enlargements of the Testicles, and in Orchitis*, inunction of this ointment is a local measure attended with the best effects.

1514. *In Phlegmasia Dolens*, much benefit accrues from the local application of this ointment, either alone or conjoined with Ext. Belladonnæ.

1515. *In all acute Inflammations*, inunction of Ung. Hyd. Fort. over the seat of the disease, and also in the armpits and groins, may be employed, when it is desirable to bring the system rapidly under the influence of Mercury.

1516. *In Diseases and Injuries of the Joints unattended with Inflammation*, the Cerat. Hydrarg. Comp. (*ante*) proves highly serviceable. This, with pressure and complete rest of the affected joint, formed the treatment which obtained so high a name for the late Mr. Scott,§ of Bromley.

1517. Hydrochloric Acid. Acidum Hydrochloricum. Hydrochloric Acid Gas, HCl, dissolved in Water. Muriatic Acid. Spirit of Salt. Sp. Gr. 1·17.

Acidum Hydrochloricum Dilutum. Dilute Hydrochloric Acid. *Prep.* A mixture of 3 fl. oz. of Hydrochloric Acid with 8 fl. oz. of Distilled Water. Sp. Gr. 1·05.

Med. Prop. and Action. The strong acid is a powerful caustic and escharotic. For internal use, the dilute acid, in doses of ♏x.—xx. in any bland fluid, acts as an antalkaline, stimulant, tonic, and mild laxative. In continued doses it is alterative and tonic, improves the tone of the digestive organs, and is regarded by Dr. Paris‖ as an effectual preventive to the generation of intestinal worms. If continued too long, it produces effects similar to those of the other mineral acids. (See Acids, part ii.) From its injurious action on the teeth, it is advisable to wash the mouth out with an alkaline solution

* Ranking's Abstract, vol. xv. p. 536.
† Med.-Chir. Rev., Oct. 1844.
‡ Lancet, March and April, 1849.
§ Surg. Obs. on Diseases of the Joints, Lond. 1828.
‖ Pharmacologia.

immediately after its employment, either internally, or locally to the fauces. As a disinfectant and fumigant, Hydrochloric Acid was first recommended by Guyton Morveau in 1773, to disinfect the cathedral of Dijon; the air of which had become intolerable from the stench emanating from the bodies buried beneath the building. He employed a mixture of 6 lbs. of common salt and 2 lbs. of Sulphuric Acid. The Hydrochloric Acid fumes set free deprived the air of all unpleasant odour, and in four days afterwards public worship was held in the building as usual. He recommends the following proportions: 15 parts of common salt and 12 of Sulphuric Acid. The salt is to be placed on flat earthen dishes on a sand-bath, and the whole acid added at once. In an inhabited house, the acid should be added gradually, and the sand-bath dispensed with (Dr. J. Brown *). Its disinfecting properties are, however, inferior to those of Chlorine.

Dose of Acid. Hydrochlor. Dil. ♏x.—♏xxx. freely diluted.

Incompatibles. Alkalies and their Carbonates, Tartrates, Citrates, Nitrates, and Sulphates; Tartar Emetic; Nitrate of Silver; Acetate of Lead; and most earths and oxides.

1518. *Therapeutic Uses. Calculous Affections. In the Oxalic Acid Diathesis,* Dr. Prout † prefers in some cases the Hydrochloric to the other acids. It may be given alone or combined with tonics, and should be persevered in for a month, or until the Lithate of Ammonia or Lithic Acid begins to appear in the urine, when its use should be suspended. The Nitro-Muriatic Acid is, however, more generally efficacious. The same remarks apply to the *Cystic Oxide Diathesis. In the Phosphatic Diathesis,* the alkaline or alkalescent condition of the urine requires to be corrected by acids; and of these, the Hydrochloric has been found the most generally beneficial. Its effects require to be carefully watched. In many instances, however, too much irritation exists to allow the administration of this remedy, in which cases opiates are clearly indicated. Of the acid, ♏v.—x. thrice daily, will generally be sufficient. Mr. Balman ‡ relates a case of Phosphatic Calculus, which was cured by injecting into the bladder a mixture of gutt ij. of the acid in f℥iv. of water, always taking care to wash out the bladder previously with warm water. It gave rise to no unpleasant symptoms. Given internally, Dr. Christison considers that it acts by correcting the phosphatic diathesis, rather than by acting directly on the urine.

1519. *In some forms of Dyspepsia,* Hydrochloric Acid has been employed with benefit. Two facts, observes Dr. Pereira,§ give a remarkable interest to the employment of this acid in dyspeptic complaints, namely, that it is a constituent of healthy gastric juice; and also that when mixed with mucus it has a solvent or digestive power on various articles of food.

1520. *In Typhus and Typhoid Fevers,* the internal use of

* Cyc. Pract. Med., vol. i. p. 622.
† On Stomach and Renal Diseases, p. 73, et seq.
‡ Med. Gaz., Dec. 1, 1848.
§ Op. cit.

Hydrochloric Acid appears to prove highly serviceable. In an epidemic Typhus Fever which prevailed at Stockholm in 1841-2, Prof. Huss * states that this acid was the most relied upon, particularly in cases attended with cerebral symptoms. He employed a mixture composed of f℥j. of the acid in f℥xij. of decoction of Mallows, in doses of a table-spoonful, every two hours. It was given in the earliest stage (after a purgative), and persisted in as long as the pulse continued full, firm, or compressible, and the sounds of the heart remained normal, or the first sound shorter than in the natural state. Its employment was not contra-indicated by the state of the tongue, or of the gastric organs; it was given whether the tongue was loaded or not, red and fissured, moist or parched; it was given also whether the abdomen was painful or not, tense or flaccid; in constipation and in diarrhœa. *The sole contra-indication* of its use was bronchial or pulmonary congestion, which was aggravated by it. Phosphoric Acid was substituted when the pulse began to lose its fulness. Fordyce, Paris, and others bear testimony to its great value.

1521. *In the continued Fevers of Childhood*, it appears to have a beneficial influence. In the advanced stages, after the second week, when the vital powers are much depressed, Dr. West† found great benefit from the following draught:—℞ Acid. Hydrochlor. Dil. ♏v., Spt. Æther. Sulph. Co. (Ph. Lond.) ♏viij., Mist. Camph. f℥iij., M., repeated every six hours. He considers it inadmissible if diarrhœa exists. At the same time, he advises gr. j.—iss. of Dover's Powder at bedtime, to check diarrhœa and to procure sleep. Food and wine are also to be given if necessary. *In Scarlatina*, Dr. McSherry‡ speaks highly of Hydrochloric Acid in doses of gutt. j.—iij. largely diluted. As an adjunct he employs surface inunction. He regards the use of purgatives as injurious.

1522. *In Syphilis*, this acid was introduced as a remedy by Zeller, of Vienna, in 1797, after an experience of nine years' successful employment of it. From that date to the present, it has occasionally found advocates, but its use has never been general. Mr. Pearson§ observed that it could radically cure the disease, and ascribed the benefit derived from it to its salutary action upon the stomach and constitution, and also to its agency on the ulcers of the throat and tongue, as a local application. Dr. Rust‖ states, that in the journals of the syphilitic ward of the Vienna Hospital, he found recorded several hundred cases entirely cured by this acid, without the aid of a single grain of

* Dublin Journ., Sept. 1845.
† Med. Gaz., Aug. 11, 1848.
‡ Amer. Journ. of Med. Sci., Oct. 1858.
§ On Various Articles of Mat. Med., p. 117.
‖ Med. Quart. Rev., 1835, pp. 113—180.

Mercury. The formula employed was ʒj. of the acid in Oij. of Barley Water daily. It is *essential*, he remarks, to the success of the remedy, that abstinence be enforced; he found it fail in every case when a full diet was allowed.

1523. *In Chronic Hooping-Cough*, Dr. Panck * found great benefit from Hydrochloric Acid, in doses of ♏x. several times daily.

1524. *In Gangrenous Stomatitis*, Hydrochloric Acid was originally proposed as a local application by Van Swieten.† The following mode of applying it is advised by Dr. Willshire:‡—To the ends of two small sticks fix small pieces of sponge, dip one of them into the acid, and slightly damp the other with water; open the patient's mouth as wide as possible, turn the diseased cheek to the light, push aside the tongue, and cover it with a piece of card, to prevent the acid from touching it; then apply the sponge with the acid in close contact with the diseased part, taking care that the whole of the ulcer is subject to its action. Then dip the other sponge into dry Chloride of Lime, and apply it, as in the previous case, to the whole of the diseased surface. Remove it in a minute or two, and wash the mouth out well with water. If necessary, it may be repeated. The constitution should at the same time be supported by Cinchona, tonics, &c. Delpech, Trousseau, and others speak of simple fumigation with the acid fumes as equally efficacious.

1525. *In Cynanche Maligna or putrid Sore Throat*, the strong acid, applied as directed in the last section, has been advised, when the ulcer assumes an unhealthy or phagedenic character. In mild cases, or if the ulceration extend further than can be seen, gargles containing the diluted acid may be substituted. It is inferior to the application of Nitrate of Silver. *In Aphthous Ulceration of the Mouth of Children, and in mild cases of Cancrum Oris*, a linctus made with ʒj. of the strong acid and ʒj. of Honey is an excellent remedy. (Dr. Symonds.§) *In Cancrum Oris*, it is often advisable to apply the strong acid to the ulcerated surface.

1526. *In Phthisis*, the use of Hydrochloric Acid has been favourably spoken of. The results of the experience of Dr. Cotton‖ on this point are as follow:—1. The mineral acids are well suited to a large number of phthisical cases. 2. The dilute Hydrochloric Acid, especially in doses of ♏x.—xv. twice or thrice daily, is an important auxiliary to other treatment, and may oftentimes be usefully employed, either alone or with other mineral or vegetable tonics. *In Phlegmasia Dolens*, Dr. Mac-

* Brit. and For. Med. Rev., Oct. 1845.

† Med. Comment., vol. iv. p. 1776.

‡ Clin. Lect., Med. Times, 1848, vol. xviii. p. 301.

§ Lib. of Med., vol. iv. p. 38.

‖ Med. Times, Nov. 17, 1860.

kenzie * directs f℥j. of the Dilute Acid in Oij. of Barley Water, with ℥ss. of Chlorate of Potash, to be taken daily.

1527. *In Gangrenous Ulceration of the Genital Organs*, Van Swieten † employed the strong acid, diluted with six parts of water, with great success.

1528. HYDROCOTYLE ASIATICA. Asiatic Penny-wort. Vullarei (Tam.). *Nat. Ord.* Umbelliferæ. *Linn. Syst.* Pentandria Digynia. *Hab.* East Indies and other tropical countries.

Med. Prop. and Action. Tonic and alterative. "The first effect produced by this medicine," observes Dr. A. Hunter,‡ "is a sense of heat or tingling in the skin, especially in the hands and feet. This is followed in a few days by a general glow over the skin of the trunk, which amounts in some cases to a sense of intolerable itching, and occasionally a slight papular redness of the skin supervenes. The general capillary circulation is accelerated, and the pulse becomes fuller and stronger. After the medicine has been taken about a week, the appetite becomes sensibly increased, in a few instances almost voracious. The visceral functions do not appear to be interfered with, even when the medicine is given in large doses. After a time the skin begins to feel softer and smoother, the cuticle gradually desquamates in small scales, the perspiration is restored, and the secretions are increased in quantity." M. Lépine obtained on analysis a thick, pale oil, or extractive, which appears to be the active principle: this he named *Vellarine*, from its native Tamul name. In preparing the plant for use, the leaves and stalks must be carefully separated as soon as possible after the plant is gathered. They should be spread on a mat, and dried in the shade, but not exposed to the sun or to artificial heat, as they are thus deprived of their colour and aroma. When thoroughly dry, they must be powdered, sifted, and kept in a closely-stoppered bottle. The ordinary dose of this powder is about gr. viij. thrice daily, the dose being gradually increased. This is the best form for administration. The infusion (gr. x., Aq. fl. oz. ij.) and decoction are not efficacious, the application of heat appearing to dissipate the oil, in which the efficacy of the plant resides. The powder sprinkled on ulcerated surfaces often stimulates them to healthy action. Cataplasms of the bruised green leaves often exercise a most salutary influence. Dr. Boileau and M. Lépine employ baths to which lb. iij. of the green plant are added; also vapour baths, with lb. v. of leaves to each. They likewise advise a syrup and an extract, but these forms are objectionable, from their entailing the application of heat, which dissipates the active principle of the plant.

Dose of powdered leaves, gr. viij., upwards.

1529. *Therapeutic Uses. In Leprosy, especially in the Anæsthetic form of the disease*, it was first introduced by Dr. Boileau, of the Mauritius, under the name of *Bevilacqua*. The results were stated to be so satisfactory, that it attracted the notice of Indian practitioners; and M. Lépine, at Pondicherry, and Dr. A. Hunter, at Madras, submitted it to a rigorous trial. The reports of the former quite bore out the statements of Dr. Boileau; but from those of the latter it appears that, though it possesses no right to the title of specific, yet that the benefits derived from it are sufficiently well marked to entitle it to the character of an efficacious remedy. My own experience with the remedy, which

* On Phlegmasia Dolens, &c. London, 1862.

† Commentaries, op. cit.

‡ Madras Med. Rep. 1855, pp. 356, 375.

has been somewhat extensive, tends to bear out the same conclusion. In some cases of anæsthetic Leprosy, the improvement was both rapid and decided: old ulcers rapidly healing, the digestion assuming a healthy tone, the skin becoming softer and clearer, and the general appearance greatly improving; in some the improvement was less marked, whilst in others it seemed to have little effect, the patients objecting to its use on account of the violent irritation it caused over the surface of the body. Its effects in Tubercular Leprosy are not nearly so well marked as in the anæsthetic variety. At the same time that it is administered internally, it should be locally applied to the ulcerations, either in the form of cataplasms of the green plant, or in powder sprinkled over a rice poultice.

1530. *In Secondary and Constitutional Syphilis*, it is a remedy of great value, especially in old-standing cases, when the skin and subjacent cellular tissue are the seat of the disease. On this point, Dr. Hunter observes, "The diseases in which it has been found peculiarly efficacious are *Ulcers*, *Syphilis*, and *Scrofula*. Nearly all ulcers have been found to heal under a course of this medicine; and amongst the successful cases, even many which had long resisted other modes of treatment. *Lupus* and *Cancerous Ulcers* do not appear to heal under its employment, though some cases derive temporary benefit from it. *Simple Ulcers* and common *Cutaneous Eruptions* are in general speedily cured by its use. *Syphilitic Ulcers* are also much benefited, and *Sloughing Ulcers* are frequently stimulated to healthy action by its use." Its employment has also been found to improve some forms of chronic *Rheumatism*.

1531. Hydrocyanic Acid. Acidum Hydrocyanicum. H,Cy. Prussic Acid. Is chiefly obtained by decomposing some of the compounds of Cyanogen, but is found also in the distilled water and oil of the Bitter Almond, and the Cherry Laurel. It is likewise produced when Amygdaline (a principle contained in Bitter Almonds, and the kernels of Peaches, Plums, and other fruits) is acted on by Emulsine. (See Amygdala.)

Dilute Hydrocyanic Acid. Acidum Hydrocyanicum Dilutum (Br. Ph.). Hydrocyanic Acid dissolved in Water, and constituting 2 per cent. of the solution. Sp. Gr. 0·997. Prepared by distilling Sulphuric Acid with Ferrocyanide of Potassium and Water.

Med. Prop. and Action. The pure acid is so powerful a sedative poison, that small animals made to breathe air saturated with its vapour died at periods varying from one to ten seconds. A single drop placed on the tongue of a rabbit killed it in eighty-three seconds; and three drops applied to the eye of a cat, caused death in twenty seconds (Christison). So powerful a poison is evidently

entirely unsuited for ordinary medicinal purposes. The Dilute Acid is a powerful and direct sedative in doses of gutt. ij.—iv.—vj., but the smaller dose should be always given at the commencement. Its action is principally directed on the brain and spinal cord. Dr. Lonsdale,* from a large number of well-conducted experiments, concludes that the immediate effects of the strong acid are exerted upon the brain and spinal cord; and that it also indirectly enfeebles, to a greater or less extent, the contractility of the heart. Dr. Meyer† and others, however, consider that it may prove fatal independently of the brain and nerves; and that its fatal effect is owing to a paralysis of the heart, induced by the topical action of the blood, mixed with the acid, on that organ. In small medicinal doses, it acts as a direct sedative, reducing the force and frequency of the heart and arterial system, allaying vascular excitement and irritability, relieving spasm, and inducing a general sensation of tranquillity in the system. Its sedative action in irritable states of the stomach is well known. Externally applied (fl. drm. j.—fl. drs. ij. of the Dilute Acid in fl. oz. x. of Water) it is sedative and anodyne. Care should be taken not to apply it to an ulcerated or denuded surface, as it becomes, when thus applied, absorbed into the system, and may produce serious and even fatal effects. "Scheele's Acid" is about twice as strong as that of the Pharmacopœia, containing 4 per cent. of the Anhydrous Acid; but different specimens of Scheele's Acid are found to vary in strength. For this reason, it should not be prescribed.

Dose of Acid. Hydrocyanicum Dil., ♏ij.—♏vj. Of Scheele's Acid, half that quantity.

Incompatibles. The Mineral Acids; the Salts of Iron; Nitrate of Silver.

1532. *Therapeutic Uses. Diseases of the Chest. In Spasmodic Asthma*, we have a large mass of evidence in favour of Hydrocyanic Acid. Granville‡ recommends it in what he calls *Catarrhous Suffocations;* and, according to Thompson, the acid acts directly in this disease by relieving the oppressed state of the pulmonary circulation. Magendie, Elliotson, and others, speak highly of the advantage derived from it in these cases. When it arises in connection with disease of the heart, the relief can be only temporary. (Lonsdale.)

1533. *In Angina Pectoris*, it has been successfully employed by Brugnatelli, Granville, and others. Dr. Schlessier§ relates a very severe case which, after resisting all other remedies, yielded immediately to Prussic Acid.

1534. *In Phthisis*, Prussic Acid was recommended and employed by Brugnatelli, in 1807; by Brera, in 1809; by Magendie, in 1815; by Heincken, in 1821; by Granville, in 1820; and by other writers, both English and continental. It was chiefly employed by the above authorities in incipient Phthisis; but Prof. Fantonetti,‖ in 1839, advised it in the advanced stages, and relates three cases in which there existed large excavations, cured during its administration. Subsequent experience has shown that its value has been very much overrated. "Its

* Edin. Med. Surg. Journ., No. lxi. p. 39. — A valuable memoir, from which much of this article is compiled.

† Lancet, June 13, 1846.

‡ Treatise on the Internal Use of Hydrocyanic Acid, Lond. 1819.

§ Med. Zeitung, No. xv. 1841.

‖ Gaz. des Hôpitaux, Feb. 19, 1839.

action," observes Dr. Cowan,* "is undoubtedly sedative; and it may be prescribed with advantage for the cough, particularly in the early stages, when the system is irritable, and any spasmodic symptoms are present." It often tends, likewise, to allay sickness, and the epigastric pain. *In Phthisis Trachealis*, Dr. Thompson† regards it as almost a specific; and in *Hectic Fever*, Dr. Granville‡ employed it with great advantage.

1535. *In Bronchitis, Pneumonia, and Pleurisy*, the use of Prussic Acid is strongly advocated by Dr. Granville; but, as venæsection was employed in all the cases adduced by him, it is difficult to say how far the acid assisted in effecting the cure. "There are cases of acute inflammation of the chest," observes Dr. Lonsdale, "in which, after profuse bleeding and evacuants have failed in arresting the disease, when the patient has become excessively weak and restless from want of sleep, and when depletion cannot be carried further with safety, that something of a soothing nature is required. Under these circumstances, Prussic Acid may be attended with considerable advantages; and it probably possesses a superiority over strictly narcotic medicines."

1536. *In Hæmoptysis*, it is advised by Dr. R. Townsend.§ He states that he has seen it allay the teasing cough and irritation of the throat which are sometimes so troublesome in connection with hæmorrhage from the lungs; and, at the same time, it proved useful in controlling the inordinate action of the heart and arteries which not unfrequently exists after much blood has been lost.

1537. *Hooping-Cough.* Since the publication of Fontaneille's success with Prussic Acid in this disease in 1817, many writers, particularly Granville, Thompson, Taylor, and Caspari, have advocated its employment. Of 100 cases treated by Dr. Macleod,‖ 88 recovered under its use; 12 were unrelieved; and, of the latter class, 3 died. Dr. H. Roe¶ asserts that Prussic Acid will, if exhibited as soon as the whoop is first heard, effect a cure in every case of simple Pertussis. Mr. Hood** also speaks highly of its efficacy. Dr. C. B. Williams,†† however, justly observes, that its administration requires great caution, especially in young children; for its sedative influence affects the heart, as well as the muscles and nerves of respiration, and the circulation of very young subjects, if suddenly depressed, does not readily recover its power. There are other remedies as effectual, and more safe.

* Trans. of Louis on Phthisis, p. 376.
† Cyc. Pract. Med., vol. iii.
‡ Op. cit., p. 59.
§ Cyc. Pract. Med., vol. i.
‖ Lond. Med. and Phys. Journ., No. xlvi. p. 361.
¶ On Hooping-Cough, chap. vii.
** On Diseases of Children, Lond. 1845.
†† Lib. of Med., vol. iii. p. 99.

1538. *In Croup*, Scheele's Acid is recommended by Mr. Hood* in doses of gutt. ij. combined with Soda, Opium, &c., to be given after the exhibition of an emetic. The employment of so powerful a sedative in young children is of very doubtful propriety. *In Laryngismus Stridulus*, however, it has been given by Dr. Reid† with advantage. He prescribes the following formula :—℞ Acid. Hydrocyanic. ♏v., Sp. Ammon. Fetid. f℥ss., T. Hyoscyami ♏x., Syr. Aurant. f℥ss., Sp. Anisi f℥j., Aquæ f℥j., M. Dose, a teaspoonful, thrice daily.

1539. *Diseases of the Abdominal Viscera. In Dyspepsia, Cardialgia, Gastrodynia, and sub-acute Gastritis*, Prussic Acid has been given with marked benefit by Drs. Granville,‡ A. T. Thompson,§ Elliotson,‖ Macleod,¶ and others. In doses of ♏iij.—v., combined with the Infusion of Calumba, it appears to possess remarkable power in allaying morbid irritability of the stomach, and of inducing a slower, and consequently a more healthy secretion of gastric juice. Speaking of its use in *Gastrodynia*, Dr. Watson** states that he has seen more rapid and decided relief afforded by Prussic Acid than by anything else, and that the cure so wrought is often permanent. *In Visceral Neuralgia, more particularly in Gastralgia and Enteralgia*, Dr. Copland†† states that he has found it successful in some cases in which Colchicum produced remarkable depression. It may be given with Camphor, Ammonia, &c.

1540. *Vomiting*, arising from many morbid conditions, appears to be much relieved by the exhibition of Prussic Acid. Excepting in strictly inflammatory states, Dr. Lonsdale considers it highly useful, and ranks it next to Creasote in efficacy. It may be advantageously given in an effervescing draught. *In Pyrosis*, it also proves very serviceable. Its efficacy is increased by being conjoined with White Bismuth. *Hypochondriasis*, originating in derangement of the stomach, or kept up by a morbid state of the chylopoietic viscera, may be advantageously treated by this medicine. (Lonsdale.) *In Dysentery*, it was recommended by Dr. Thompson, and it was found very serviceable in two or three cases by Dr. Lonsdale.

1541. *Skin Diseases*, attended with much irritation, are often benefited by the local application of lotions containing Prussic Acid. Such lotions may be composed of from ♏x. to fl. drm. j. of dilute Hydrocyanic Acid to fl. oz. j. of Water or Glycerine. When a solution of the latter strength is used, it must not be

* Op. cit.

† On Infantile Laryngismus, 8vo. 1849.

‡ Op. cit., p. 366.

§ Cyc. Pract. Med., vol. iii. p. 725.

‖ Cases Illustrative of the Efficacy of Hydrocyanic Acid, Lond. 1820.

¶ Lond. Med. and Phys. Journ., No. lix.

** Lectures, vol. ii. p. 446.

†† Dict. Pract. Med., vol. ii. p. 893.

applied over a very large surface, and the patient must be warned not to use it too freely. Caspari* recommends the diluted acid in *Erysipelas*. According to the experience of Dr. Thompson,† it may be used as a lotion in three species of *Lichen* (particularly in *Lichen Tropicus*, or *Prickly Heat*); in *Prurigo*, to allay the vexatious itching; and in *Lepra*, where the skin is very irritable. *In Impetigo*, where there is much vesication, and ointments are too irritating, the following lotion was found highly serviceable:—℞ Acid. Hydrocyan. f℥iv., Aq. Dest. f℥viij., Alcohol f℥iv., Plumb. Acet. gr. xvij., M. *Ecthyma*, *Eczema*, and *Acne* seemed also much benefited. (Lonsdale.) *In Cancer*, it has been advised as an external application to allay excessive pain, but the practice is fraught with danger, as, if it is applied to a large ulcerated surface, the acid may become absorbed into the system, and produce poisonous effects.

1542. *Other Diseases. In Rheumatism*, it has been much employed by the French and Germans. Mr. Taylor ‡ ranks it as a specific.

1543. *In Gout*, Dr. Seidel,§ of Breslau, advises the external use of Hydrocyanic Acid (Scheele's). He states that, if painted over the parts affected, it removes pain in a few hours.

1544. *In Hypertrophy of the Heart*, Dr. Hope‖ advises Prussic Acid (Scheele's) as a palliative, in doses of gutt. ij.—iij., twice or thrice daily. It requires to be steadily persevered in. *In Nervous Palpitations*, or those arising from debility, it has also been found a valuable sedative.

1545. *In Hæmorrhages*, it is advised by Granville and others; but it appears to have little influence, except as a sedative to the heart's action.

1546. *In Chorea*, it has proved occasionally serviceable. Some cases are related,¶ in which it appeared to remove the convulsive movements; and there can be no doubt that, where much irritation of the nervous system exists, it may prove salutary.

1547. *In Tetanus*, it has been employed to allay the violence of the paroxysms. It is favourably reported of by Mr. Ward,** of Gloucester.

1548. HYDROGENIUM. Hydrogen. Was formerly employed by Beddoes as a remedy for *Phthisis;* and by Reuss, in *Rheumatism and Paralysis;* but it has very limited medicinal power, and is now rarely employed. An animal immersed in its vapour dies, not apparently

* Journ. de Progrès des Sciences Méd., vol. ii. p. 63.
† Atlas of Cutaneous Eruptions.
‡ Edin. Med. Surg. Journ., xix. 399.
§ Med. Zeitung, 1843.
‖ Cyc. Pract. Med., vol. ii. p. 548.
¶ Ed. Med. Surg. Journ., vol. xxviii.
** Obs. on Tetanus, 1835.

from any poisonous quality of the gas, but from the absence of Oxygen. Diluted with two-thirds of atmospheric air, it occasions some diminution of muscular power and sensibility, and also of the force of the heart's action. (Dunglison.)

1549. HYDROGENII PEROXIDUM. Peroxide of Hydrogen. Is best obtained for medicinal purposes by the process originally proposed in 1818 by Thénard, its discoverer, in which Peroxide of Barium is used as the agent for supplying the Oxygen with Hydrochloric Acid as the displacing body. A solution charged with ten volumes of Oxygen is the best and most applicable for general use, according to Dr. B. W. Richardson,* who was the first to apply it to therapeutic uses.

Med. Prop. and Action. The Peroxide in weak solution acts as a stimulant. It probably acts by oxidizing the blood, but this effect can be arrested by the action of alkaloids and narcotics. In some cases, when employed freely, it has been observed to produce a profuse salivation. Of a solution charged with ten volumes of Oxygen, the dose for an adult is fl. drm. j.—fl. drs. iv. in a liberal quantity of water. As a general rule, it should be given separately, or if conjoined with another remedy, it should be added at the period of administration.

1550. *Therapeutic Uses.* Dr. Richardson employed the Peroxide in 223 instances, from which he draws the following conclusions:—In the treatment of *Diabetes* the Peroxide, while it reduces the specific gravity of the urine, increases the quantity, so that its value in the disease is inappreciable. *In Chronic and Sub-acute Rheumatism*, it is of great value. *In Valvular Disease of the Heart attended with Pulmonary Congestion*, it largely relieves the attendant apnœa. *In Struma*, it removes *glandular swellings*, like Iodine. *In Mesenteric Disease*, it improves the digestion, and favours the tolerance of Cod Liver Oil and Iron. *In Jaundice*, it exercises an excellent effect by improving the digestion and causing a free secretion (of bile?). *In Cancer*, it seems to exert no influence. *In Pertussis*, its value is very remarkable: it cuts short the paroxysms, and removes the disorder altogether more quickly than any other remedy, except change of air. *In Chronic Bronchitis*, during the attacks of suffocative dyspnœa, it affords rapid relief. *In Chronic Laryngitis*, its caustic character renders its administration painful. *In Anæmia*, while it exerts no specific influence *per se*, yet, combined with Iron, it increases the activity of that drug. *In Phthisis*, in the first stage, it greatly improves digestion, and aids the action of Iron; while, in the last stage, it affords unquestionable relief to the breathlessness and oppression, acting, in fact, like an opiate

* Lancet, Oct. 20, 1860, p. 390; and Brit. Med. Journ., March 22, 1862.

without producing narcotism. It was also used in a few cases of *Dyspepsia*, but with what result is not stated. (Ranking.)

1551. HYOSCYAMUS NIGER. Common Henbane. *Nat. Ord.* Solanaceæ. *Linn. Syst.* Pentandria Monogynia. *Hab.* England and Europe. It has also been cultivated in India.

Med. Prop. and Action. The leaves and seeds are narcotic, anodyne, and anti-spasmodic, in doses of gr. v.—x. It is best given in Extract or in Tincture. Active principle, *Hyoscyamia* or *Hyoscyamina*, which, in its properties, is almost identical with Atropia (which see). In medicinal doses, Henbane calms and soothes any irritation of the system, allays pain, and relieves spasm. Unlike Opium, it neither causes constipation, checks secretions, nor produces headache. It also induces dilatation of the pupil, while Opium causes contraction. In over-doses it occasions sickness, stupor, dimness of sight, a hard pulse, delirium and coma, with dilatation of the pupil; until, gradually, the pulse becoming weak and tremulous, petechiæ make their appearance, and death ensues. Dissection shows inflammation of the stomach, of the intestines, and of the membranes of the brain. (Thompson.) The delirium caused by Henbane is generally furious and unmanageable. Dr. Neligan* has adduced certain facts which tend to weaken belief in the anodyne powers of Hyoscyamus, but it still maintains its character with most practitioners. Externally, the leaves may be applied in the form of cataplasms or fomentations. The extract in solution, dropped into the eyes, or rubbed on the temple, causes dilatation of the pupil. The caustic fixed alkalies, as potash and soda, destroy its narcotic powers, by decomposing its active principle (Garrod). It is a much more eligible sedative for children than Opium.

Offic. Prep. 1. Extractum Hyoscyami (a green Extract prepared from the juice of the fresh leaves and young branches). Dose, gr. v.—gr. x.

2. Tinctura Hyoscyami (Hyoscyamus leaves dried and bruised, oz. iiss.; Proof Spirit Oj. Prepared by maceration and percolation). Dose, ℥xv.—fl. drm. j., or more.

1552. *Therapeutic Uses. In Nervous Irritability*, Henbane is peculiarly valuable. Mr. Travers† remarks, that in ruffled states of the system generally, but especially in an over-active state of the vascular system, there is a charm in the operation of Henbane altogether peculiar. It is feeble as an anodyne, feebler as a soporific; "but not poppy nor mandragora" soothe and still so unexceptionably as Henbane. *In the delirium and irritable condition of the nervous system which accompany reaction after the loss of blood*, Henbane is strongly recommended by Dr. M. Hall.

1553. *In Delirium, Mania, and other Cerebral Affections*, where a contracted state of the pupil, and other circumstances, contra-indicate the use of Opium, Henbane may often be advantageously employed. Dr. A. T. Thompson‡ states that he has long given it with much benefit in these cases, in combination with Camphor.

* Dublin Medical Press, 1862.

† On Constitutional Irritation and the Pathology of the Nervous System, Lond. 1835.

‡ Dispensatory, p. 492.

1554. *In Puerperal Insanity*, the combination of Ext. Hyoscyami (gr. v.) and Camphor (gr. v.), repeated every six hours, is highly spoken of by Gooch.*

1555. *After-Pains* are, according to Dr. J. Johnson,† greatly relieved by the following formula:—℞ T. Hyoscyam. ♏x.—xx., Liq. Ammon. A. (Ph. L.) f℥ss., Liq. Ant. Tart. ♏x., Aq. Menth. Vir. f℥j., M. ft. haust. 4tis horis sumend.

1556. *In Cancer of the Uterus*, Dr. J. Clarke advises a vaginal injection, composed of ℥iij. of the Extract, dissolved in Oj. of warm water. Of this f℥iij. may be used, three or four times daily. It affords much temporary relief.

1557. *In Diseases of the Eye*, Henbane is particularly valuable as a means of dilating the pupil. It is less powerful than Belladonna, but may be substituted for it in *Cataract, deep-seated Ulcers of the Cornea, Iritis, &c.* (See BELLADONNA.)

1558. *In the Cough and Dyspnœa of Phthisis*, great relief is often obtained by inhaling the vapour of Henbane (gr. iv.—vj. of the Extract, in Oj. of boiling water). *In Asthma*, its external exhibition is occasionally of great service. It is highly spoken of by Dr. Bree.

1559. *In Hypertrophy of the Heart*, Dr. Hope‡ advises the Extract, in doses of gr. iij.—iv., once or twice daily; it is a good palliative, but to be of service it requires to be persevered in. *In Palpitations arising from Debility*, he advises the following formula:—℞ T. Hyoscyam. f℥ss., Spt. Æther. Nit. f℥ss., Syr. Aurant. f℥j., Mist. Camph. f℥x., M. ft. haust. bis terve in die sumend.

1560. *In Neuralgia, Rheumatism, painful Glandular Swellings, irritable Ulcers, and Hæmorrhoids*, fomentations or cataplasms of Henbane afford great relief. An ointment composed of equal parts of the Extract and Lard is also very serviceable in these cases.

1561. ILEX AQUIFOLIUM. Common Holly. *Nat. Ord.* Aquifoliaceæ. *Linn. Syst.* Tetrandria Tetragynia. *Hab.* England, Europe.

Med. Prop. and Action. The leaves are tonic and astringent. Active principle, *Ilicine.*

Dose, of leaves (in decoction) oz. j.—oz. ij. daily.

1562. *Therapeutic Uses. In Intermittent Fevers*, the bark and leaves are strongly recommended by Dr. Rousseau,§ who states that, though inferior to Bark, they are an excellent substitute for it, when the latter disagrees, or is otherwise contra-indicated.

* On Diseases Peculiar to Women.
† Med. Chir. Rev., vol. lxv. p. 112.
‡ Cyc. Pract. Med., vol. ii. p. 548.
§ Mém. de l'Acad. Royale de Méd., vol. iii. p. 522.

Chomel employed it in twenty-two cases with very doubtful benefit.

1563. INDIGO. $C_{16}H_5NO_2$. A substance prepared from various species of Indigofera. *Nat. Ord.* Leguminosæ. *Source*, India.

Med. Prop. and Action. Anti-spasmodic (?) in doses of a few grains, gradually increased. In excessive doses it *induces* spasms.

Dose, from gr. xxx.—gr. cxx. daily, commencing with a few grains.

1564. *Therapeutic Uses. In Epilepsy*, it has been used with apparent benefit. M. Podrecca* states that he employed it successfully in many instances: of 31 cases treated by Dr. Roth,† 14 were cured, 11 relieved, and 6 derived no benefit. In the hands of Dr. Strahl,‡ however, it failed; for of 10 cases treated with it, only 2 received any benefit, and even that was temporary. Dr. Strahl considers that it exercises a considerable influence on the uterus and genito-urinary organs; and, by its means, effected a cure in some cases of *Amenorrhœa*.

1565. INULA HELENIUM. Common Elecampane. *Nat. Ord.* Compositæ. *Linn. Syst.* Syngenesia Superflua. *Hab.* Europe.

Med. Prop. and Action. The root (*off.*) is a mild tonic and diuretic. It is now rarely employed, but was formerly held in high esteem. It contains two peculiar principles, *Inulin* and *Helenin*.

Dose, gr. xx.—gr. lx. in infusion.

Therapeutic Uses. Similar, but inferior, to Gentian.

1566. IODOFORM. Iodoformum. Sesqui-iodide of Carbon, Yellow Iodide, or Ter-iodide of Formyle. Formed by the mixture of concentrated alcoholic solutions of Iodine and Potassa. Introduced into practice in 1848 by Dr. Glover.§ It occurs in the form of small pearly crystals of the colour and odour of saffron, and of a sweet taste. It is volatile, soft to the touch, insoluble in water, soluble in alcohol, and in ether. *Chem. Form.* C_2HI_3.

Med. Prop. and Action. In small medicinal doses Iodoform, according to Dr. Glover, appears to possess a union of tonic, stimulant, and alterative properties, exercising, at the same time, a remarkable influence on the nervous system. Though ordinarily unirritating, it may, in large doses, prove fatal; 50 grains, in Dr. Cogswell's‖ experiments, having destroyed a strong dog. The odour of the Iodine was detected in the blood, brain, and muscles. The dose is gr. j.—iij. twice daily, in the form of pill. Externally, it may be applied in the form of ointment (gr. xxx.—gr. lx. ad Ung. oz. j.). *As an anæsthetic*, it has been supposed to exercise effects similar to Chloroform, but

* Mem. del Med. Contemp., 1842.

† Brit. and For. Med. Rev., vol. ii. p. 244.

‡ Grafe and Walther's Journ., vol. xxi. part i.

§ On the Physiolog. and Med. Prop. of Iodoform, Edin. 1848.

‖ Essay on Iodine, p. 122.

the experiments of Righini and of Bouchardat* show that though its influence on leeches, fishes, &c., is very marked, yet that on Mammalia it will bear no comparison to Chloroform, except, indeed, in its local operation. Introduced in the form of suppository into the rectum, M. Morétin found its local anæsthetic influence was so marked that defecation could be accomplished without consciousness on the part of the patient; and this was further shown by the anodyne influence it exercises when applied to cancerous and other ulcers. *As a disinfectant*, its powers have been asserted by M. Righini.†

1567. Its *Therapeutic Uses* are analogous to those of Iodine (q. v.). Various forms of *Scrofula*, *Rachitis*, *Syphilis*, *Bronchocele*, *Amenorrhœa*, &c., are stated by some eminent German authorities to have been benefited by its use. Mixed with starch, spread on paper, and allowed slowly to volatilize, it has been thought to exercise a beneficial influence in *Phthisis*. It has proved especially useful in *Obstinate Skin Diseases*. Dr. Glover‡ found great benefit from it in *Lepra*, *Psoriasis*, and *Chronic Eczema*, and likewise in an old case of *Bronchocele* and in *Scrofulous Enlargement of the Glands*. Similar testimony is borne by Dr. Litchfield.§ In *Chronic Enlargement of the Prostate Gland*, M. Morétin found suppositories of this substance of great value.

1568. Iodo-Tannin. A preparation formed by triturating together Iodine, Tannin, and Water.

Med. Prop. and Action. It is considered to conjoin the alterative properties of Iodine with the astringency of Tannin. For internal use it is given in the form of Syrup (Iodine grs. xxx, Ext. of Rhatany grs. cxx., Water and Sugar of each enough to form Oiiss. of Syrup), in doses of fl. drs. ij.—fl. oz. ss. gradually increased. Each ounce contains about a grain of Iodine. For external or local use the following solution is advised:—Iodine grs. lxxv., Tannin oz. iss., Water fl. oz. xxx.; filter and concentrate to fl. oz. iij. Its action is that of a stimulant and astringent.

1569. *Therapeutic Uses.* As an internal remedy, the Syrup is applicable to the same class of cases generally as Iodine, but is preferable where there is profuse discharge or marked relaxation of the mucous membranes or other tissues. The solution (*ante*) has been found serviceable as an injection in *Leucorrhœa*, *Gonorrhœa*, *Vaginitis*, and allied affections; also as an application to *Ulcerations of the Os Uteri*, *Hydarthrosis*, &c. As an injection in the cure of *Varices*, it has been employed by M. Desgranges:‖ out of seven cases in which he employed it, six proved successful. He found it, however, nearly one-third as weak as the Perchloride of Iron. He advises a trial of its powers in *Aneurism*.

1570. Iodum. Iodine. Iodinium. A simple body, obtained chiefly from incinerated Sea-weed, or Kelp. It exists

* Ann. de Thérap., 1857, p. 205.
† Journ. de Chim. Med., 1853.
‡ Edin. Med. Surg. Journ., lviii. p. 538.
§ Med. Gaz., Aug. 1836.
‖ Braithwaite's Retrospect, xxxiv. p. 178.

largely in many marine plants. It was discovered by M. Curtois, in 1812. Eq. Wt. 127. Soluble in Alcohol and Ether. Soluble in 7000 parts of water. Much more soluble in a watery solution of Iodide of Potassium or of Chloride of Sodium.

Med. Prop. and Action. Iodine, given internally in small or medicinal doses, is tonic and alterative. One of the first and most important effects of this remedy observed by Lugol * is a great increase of appetite. This is certainly one of its best effects; for not only does it indicate an improved state of the digestive organs, but it enables us with ease to invigorate the constitution by wholesome and sufficient nourishment. Together with increased appetite, the general health improves, and the body gains strength and plumpness. There is also increased activity of most of the excreting and secreting organs. The urine is generally much increased in quantity. Some experience this effect so instantaneously, that Iodine has been detected in the urine almost immediately after the dose has been taken; indeed, Prof. Porta† observes, that after inhaling the vapour of Iodine for one minute, not so much as a grain of the metal having been lost, his urine gave forth the odour of Iodine for four or five days. It occasionally causes purging, in which case it should be discontinued. In large doses, it produces irritation of the gastro-intestinal mucous membrane, causing pain and heat of the epigastrium and vomiting. When combined with potassium, it does not produce the same amount of local irritation. Some persons, from idiosyncrasy, are unable to take Iodine, even in small doses, without its causing headache, vertigo, coryza, derangement of the digestive organs, &c. This state is designated *Iodism;* it only remains as long as the patient is taking the remedy; on its being discontinued, the whole of the symptoms disappear. The subject of Iodism has been examined by M. Rilliet,‡ whose observations, though highly interesting, are too lengthy for insertion in this place. *Externally* applied, it produces intense local action, and often causes a prolonged sensation of pricking and smarting. The skin, when rubbed with it, becomes of a reddish yellow colour, from the absorption of the remedy, its presence in the cutaneous tissue, and its injection into the capillary vessels. The epidermis soon becomes detached in layers of various sizes. When applied to ulcerated surfaces, it at first causes much pain; but as the healing process progresses, the Iodine causes less and less irritation. This diminution of pain was not uniformly observable. When the vapour is inhaled, it excites cough and irritation of the air-passages. Whether inhaled, or applied endermically, it becomes absorbed into the system, and evidences its presence in the urine, on the addition of starch. It has been deemed emmenagogue. Iodine has lately been proposed as a deodorizer and disinfectant by Dr. B. W. Richardson. Air charged with organic impurities is rendered entirely inodorous by the volatilization of Iodine in the apartment.

Offic. Prep. 1. Linimentum Iodi (Iodine oz. 1½; Iodide of Potassium oz. ss.; Rectified Spirit fl. oz. v.). This Liniment acts as a speedy vesicant. One to three applications with a camel's-hair brush are usually sufficient.

2. Tinctura Iodi (Iodine oz. ss.; Iodide of Potassium oz. ½; Rectified Spirit Oj.). Dose, ℥v.—℥xx. This Tincture may be used as an external application to cause absorption in enlarged glands, diseased joints, chronic skin diseases, &c. It should be applied with a camel's-hair brush. The Compound Tincture of the Lond. Pharm. contains ℥ss. of Iodine and ℥j. of Iodide of Potassium to the pint.

* Lugol's Essays on the Effects of Iodine in Scrofulous Diseases, translated by Dr. O'Shaughnessy, Lond. 8vo, 1831; and Lugol's Researches, &c., on Scrofulous Diseases, by Dr. Ranking, 1844, Lond. 8vo. From these two valuable works, a great part of this article is compiled.—E. W.

† Brit. and For. Med. Rev., June 1851.

‡ Gaz. Méd. de Paris, 1860.

3. Unguentum Iodi Compositum (Iodine gr. xxxij. ; Iodide of Potassium gr. xxxij ; Proof Spirit fl. drm. j. ; Prepared Lard oz. ij.). The Ointment of the Lond. Pharm. contains ℥ss. of Iodine, and ℥j. of Iodide of Potassium to ℥ij. of Lard.

Dose of Iodine, gr. ¼, gradually increased to gr. j. (See sect. 1572.)

1571. *The alleged ill effects of Iodine are* :—1. *That it causes emaciation of the body generally.* This is contrary to the experience of Lugol,* who, from a large number of observations, concludes—1, that emaciated females acquired a state of *embonpoint;* 2, that corpulent women did not become emaciated ; and 3, that those not belonging to either of the preceding classes lost nothing of their middle state, but gained strength and improved health. Dr. Ranking† adds that his own observations quite bear out the remarks of Lugol. 2. *That it causes emaciation of the mamma in the female and of the testis in the male.* There are cases recorded by Cullerier‡ and others in which these effects have been observed; but so rare are their occurrence that neither Lugol, Magendie, Ranking, nor Dr. Davies,§ of Hertford, ever met with a single example, although they have respectively employed this agent in a very large number of cases. In Cullerier's patients the organs resumed their natural size and functions when the medicine was discontinued. Although I have employed this remedy extensively, and continued its use for weeks and even months, I have never met with an instance of emaciation of these organs. 3. *That it produces salivation.* This effect is much more common than either of the preceding. Many instances of it are on record. It differs from mercurial salivation in not being attended with fetor of the breath, by the teeth remaining firmly fixed, by the absence of ulcers of the gums,‖ and by disappearing when the medicine is omitted. It has more frequently been observed when a course of Mercury has preceded the use of Iodine. 4. *That it occasions Catarrhal symptoms, Hæmoptysis, gastric irritation, and general disturbance of the system.* These effects, it is now generally admitted, only occur in persons who, from peculiar idiosyncrasy, are unable to take the medicine in any form or dose (such cases, however, are rare), or where the remedy has been exhibited in injudiciously large doses.

1572. *The dose* requires to be carefully regulated. Much discredit has fallen upon Iodine from the heroic doses in which it is occasionally prescribed. Lugol commences with gr. ss. of Iodine, and gr. j. of the Iodide of Potassium daily, and gradually increases the dose, but never exceeds one grain of Iodine daily. All the best authorities agree in advising the remedy to be given in small doses. Baudelocque advises ¼ of a grain, and Dr. T. Smith $\frac{1}{10}$ of a grain, thrice daily. Lugol's formulæ are amongst the best which can be employed. They are as follow :—

1. *Iodiuretted Mineral Water for internal use.*

No. 1,	Iodinii gr.	¾,	Potassii Iodidi gr.	j½,	Aquæ f ℥viij.		
2,	„	j.,	„	„	ij.,	„	„
3,	„	j½,	„	„	iij..	„	„

At the commencement of treatment, two-thirds of No. 1 is to be given daily; in the second fortnight the whole may be given. This may be gradually increased, until the whole of No. 3 is taken; but the latter is never to be exceeded. Great stress is laid by Lugol upon the time the medicine is exhibited ; he recommends the first dose, consisting of half the daily quantity, to be taken before breakfast, and the second in the afternoon, an hour before dinner. His other formulæ are :—

2. *Solutions for external use, lotions, injections, &c.*

Iodine.....	gr. ij.	....gr. iij.	....gr. iv.
Iodide of Potassium ..	gr. iv.	....gr. vj.	....gr. viij.
Distilled Water	lbj.	..... lbj.	..... lbj.

* Op. cit., p. 23.
† Op. cit., p. 248.
‡ Lancet, No. 1268.
§ Selections in Pathology and Surgery, Lond. 1839, p. 51.
‖ Sir F. Smith, Dub. Journ., July 1841.

3. *Rubefacient Solution* :—℞ Iodinii ℥iv., Potas. Iod. ℥j., Aq. Dest. f℥vj., M.
4. *Caustic Solution* :—℞ Iodinii ℥j., Potas. Iod. ℥j., Aq. Dest. f℥ij., M.
5. *Iodiuretted Ointment* :—℞ Iodinii gr. xij., Potas. Iod. ℈iv., Adipis ℥ij., M.
6. *Iodiuretted Baths.*

Children.				Adults.			
Age.	Water. Quarts.	Iodine. Grains.	Potas. Iod. Grains.	Degree.	Water. Quarts.	Iodine. Drachms.	Potas. Iod. Drachms.
				No.			
4 to 7	36	30 to 36	60 to 72	1	200	2 to 2½	4 to 5
7 ,, 11	75	48—60—72	96—120—144	2	240	2—2½—3	4—5—6
11 ,, 14	125	72 to 96	144 to 192	3	300	3 to 3½	6 to 7

N.B. The vessels should be made of wood or marble, as Iodine forms soluble compounds with zinc, tin, and lead. The syringes used for injections should be of glass.

A caustic solution of Iodine in Glycerine is proposed by Dr. Max Ritcher.* It is prepared by first dissolving ℥ss. of Iodine in f℥j. of Glycerine, and subsequently adding another ℥ss. of Iodine, which completely dissolves in a few hours. It is applicable to all the usual forms of *Scrofulous and Syphilitic Affections*, but is especially useful in *Lupus*. The pain it causes, more or less intense, rarely lasts for more than two hours.

1573. *The Modus Operandi of Iodine.* Lugol considers that it acts specifically upon the absorbent system; others, that its action is solely that of a general tonic, improving and strengthening the digestive organs, establishing a healthy tone of the system, and thus retarding the development of tubercular disease. Dr. Glover† explains its action thus:—"It is well known," he observes, "to all practical men, that Iodine acts as a diuretic; but it is not equally known, that the urine contains large quantities of urea. Now, urea is the product of albuminous tissues, and, as it has been clearly shown by chemical analysis that the tubercle is composed chiefly of albumen, we can understand how Iodine acts by carrying a large quantity of albumen out of the system, thus retarding the growth and promoting the absorption of tuberculous matter."

1574. *In order to ascertain whether Iodine has become absorbed into the system,* take a strip of starched paper, moisten it with the saliva or urine of the patient, and then touch it with Nitric Acid. If Iodine be present, a more or less intense blue is produced (Rayer).‡ According to Dr. Rosenthal,§ Iodine may be detected not only in the urine, saliva, and other secretions, but also in the alvine evacuations within from four to seven hours after Iodide of Potassium has been taken. Iodine may be detected in the urine when it is introduced into the system through the skin, by means of frictions or baths.

1575. *Remarks on its Use.* 1. During the exhibition of Iodine give a light animal diet, carefully avoiding all articles containing much starchy matter, as this, by combining with the Iodine, renders it comparatively inert.

2. Enjoin exercise in the open air; close, dark, ill-ventilated rooms retard the action of the remedy.

3. Give the medicine an hour or two before a meal; if given on an empty stomach, it is liable to give rise to gastric irritation.

* Med. Chir. Rev., July 1856.
† Treatise on the Nature, &c., of Scrofula.
‡ Bull. de Thérap., vol. xxxv.
§ Lancet, Sept. 5, 1863.

4. Employ an aqueous solution recently prepared, in preference to a strong alcoholic solution, such as the simple Tincture of the Edinburgh Pharm., which undergoes changes by long keeping. The Tincture of the Brit. Pharm. is a better preparation for internal use.

5. If it create irritation, diminish the dose and combine it with small doses of Henbane or Opium.

6. Be careful to regulate the bowels.

7. Up to a certain point, patients often visibly improve under the use of Iodine; there then occurs an arrest of benefit, and the disease remains stationary, or even begins to retrograde. Under these circumstances, discontinue the medicine for a week or two, and then resume it.

8. Dr. Rodet, of Lyons, from numerous observations, concludes that Iodine will rarely produce any ill effects, if given only in those cases which evidently call for its employment; that it acts much more favourably, if the patient has not already been subjected to other remedial measures; and that, where Mercury has been previously taken, Iodic ptyalism is likely to occur.

9. When syringes are to be employed, they should be of glass; when baths, the vessels containing the liquid should be of wood, marble, or glass. Metal vessels of all kinds should be avoided.

10. The recent stains of Iodine may be effectually removed by a little milk, alcohol, or diluted Liquor Potassæ.

1576. *Therapeutic Uses. Scrofula.* This term embraces so large a number of affections, many of which require a peculiar mode of treatment, that it will be more convenient to consider each separately; premising, however, that they are all essentially the same disease, dependent upon the same cause, viz. tubercle, and are all, more or less, benefited by the same remedy, Iodine.

1577 *Enlarged Lymphatic Glands.* The glands of the neck and mamma are those most subject to scrofulous enlargement, at least in the external system, to which we are at present directing our attention. In these cases, the Iodureted ointment externally, and the mineral water (*ut supra*) internally, offer one of the best chances of obtaining resolution. The ointment should not be applied oftener than once a day, for fear of producing inflammatory action of the tumour, rather than local excitement of the absorbents. The solution (*ut supra*) may be substituted where there is much tenderness of the skin. When suppuration has taken place, the solution, applied with a camel's-hair brush, is to be preferred, and it should be persevered in until the abscess is about to break, as such a proceeding tends much to circumscribe the limits of the suppuration. (Lugol.)

1578. *In Scrofulous Abscesses*, the same general principles should guide us, as in the case of enlarged lymphatic glands. After the matter has been evacuated, Lugol proposes to inject a solution of Iodine (No. 2). By this means, it is stated that a gradual obliteration of the cavity of the abscess may be obtained. It is only applicable to abscesses of medium size; it would be neither safe nor advisable when they are of large extent.

1579. *In Scrofulous Ulcers*, the external and internal use of Iodine is of great service. Lugol observes, that it is not exaggeration to say that Iodine changes the appearance of scrofulous ulcers, sometimes more quickly than Mercury modifies those of a

syphilitic character. The ointment (No. 5) is generally preferable at first, the solution being more applicable to ulcers of long standing. It should, at the same time, be given internally and Iodurettted baths employed. M. Lemasson* relates eight cases successfully treated with Iodine combined with Opium; he justly observes, a fact I have often noticed, that in cases of scrofulous ulceration, the union of Opium with Iodine imparts to the latter a power which it does not possess singly. He advises the subjoined formula:—℞ Iod. gr. xv., Potas. Iod. ʒj., T. Opii fʒij., Ung. ʒij., M.

1580. *Unsightly Cicatrices, the result of Scrofulous Ulcers*, may, in a great measure, be prevented by occasionally touching the exuberant granulations with Caustic Iodine (No. 4); and in those cases where cicatrices have formed, much benefit will be derived from the same application, or of the Iodine ointment.

1581. *In Scrofulous Diseases of the Bones, Joints, &c., and in Caries*, Iodine appears to have been signally successful in the hands of Lugol, but it has been found less efficacious than in other forms of Scrofula, in the experience of Ranking,† Baudelocque, and the majority of practitioners. Lugol directs it to be employed externally and internally; frictions with Iodine ointments to be made around the whole surface of the diseased joints; and, in cases of *vertebral disease*, on the loins. Iodine injections (No. 2) are advised by him, when fistulous canals are formed in the neighbourhood of diseased joints. The last practice is not unattended with danger, as it occasionally causes intense inflammation and sloughing of the soft parts. In disease of the hip-joint, Lugol recommends motion of the limb, and exercise in the open air. Leeches, setons, and issues, he strongly condemns.

1582. *In Scrofulous Coryza*, more benefit will be derived from the internal than the local use of Iodine. Perseverance in the aqueous solution (No. 1), with strict attention to the bowels, will be sufficient to effect a cure in the majority of cases.

1583. *In Scrofulous Otorrhœa*, Iodine is of great value. Local applications of it are useful only when the disease is limited to the external auditory passages. When it depends upon inflammation or ulceration of the internal structures, injections may create serious disturbance, and should not be employed; but the internal use of the solution (No. 1) may be persevered in with great advantage, giving strength and tone to the system.

1584. *In Scrofulous Affections of the Testes*, the same general principles should be followed as in the preceding cases; namely, Iodine (No. 1) internally; Iodine frictions (No. 5) in the indolent

* Appendix to O'Shaughnessy's Trans. of Lugol, op. cit. p. 188.

† Op. cit., p. 301.

stage; and Iodine injections (No. 2) into the fistulous tracks after the abscess has burst.

1585. *In Scrofulous Ophthalmia*, Lugol, in addition to the internal use of Iodine (No. 1), recommends the solution (No. 3) to be daily applied to the conjunctiva, by means of a syringe. Great success is stated to have attended this practice; but the one which I have employed for some years with manifest advantage is that proposed by Dr. Furnival,* of Hertford. The eyelid is put on the stretch, and the Tincture of Iodine (L. Ph.) applied to the external surface of the eyelids. It relieves the profuse lachrymation and the photophobia in a remarkable manner. Dr. Furnival states that he has employed it in this manner for many years, and always with decided benefit: he adds, in the early stages it will altogether, and speedily, arrest the morbid action; and in the latter periods, it will greatly lessen, if not entirely remove, opacities of the cornea, which have resisted all other remedies. The Tincture should be applied once daily with a camel's-hair brush. Iodine (No. 1) should be given internally; and, at the same time, a generous diet, free exposure to the light, and the disuse of dark rooms and of shades, are advised.

1586. *In Tubercular Meningitis, or Acute Hydrocephalus*, Iodine has been used with benefit. Drs. Christie and Woniger † relate two cases which had reached the paralytic stage, but which recovered under the external and internal use of Iodine. Dr. Bennett states that he has derived decided benefit from Iodine and its preparations, in this disease; and Dr. Willshire ‡ bears similar testimony. The former advises the use of Iodine, externally and internally, in the early stages of the disease, before there is much evidence of inflammation and congestion. He applies the Iodine ointment to the shaven scalp, and gives, internally, gr. $\frac{1}{10}$ of Iodine with gr. iij. of Potas. Iod. in solution, every three hours. This, with turpentine enemas, will be found in most cases a palliative, and, in some, a curative mode of treatment. Dr. Rilliet § advises the use of Iodine frictions to the shaven scalp in the second and third stages of the diseases. Dr. Winn ‖ relates a case of *Chronic Hydrocephalus* treated with injection of Iodine (Tr. Iod. ℿxiv., Aq. f℥ij.) subsequent to paracentesis. Though the case ended fatally, it would seem to prove that Iodine may be injected into the brain without causing any poisonous or other ill effect. The practice is not advocated.

1587. *In Phthisis*, Iodine has been employed with much confidence, in consequence of the benefit derived from it in other forms of tuberculous disease. Drs. Morton (U.S.), Gairdner,

* Lancet, vol. i. 1842-43, p. 405.
† Brit. and For. Med. Rev., April 1844.
‡ Med. Times, vol. xvi. p. 505.
§ Prov. Journ., Feb. 20, 1850.
‖ Lancet, Nov. 3, 1855.

Baron, and others, have reported favourably of it. Dr. C. B. Williams * states that he believes it capable of promoting the removal of phthisical lesions in their early stage, and of retarding their increase; and adds, that for twelve years, he has used the subjoined formula with benefit in incipient cases:—℞ Potas. Iod. gr. ij.—iij., Liq. Potas. ɱxx.—xxx., Aq. fʒiss., ter in die sumend. Sedatives or expectorants were added, as required. Sir C. Scudamore † strongly advocated Iodine inhalations; and, for this purpose, employed the subjoined mixture:—℞ Iodin. gr. v., Potas. Iod. gr. iij., Aq. Dest. fʒv., Alcohol fʒij., T. Conii fʒvj., M. Of this, fʒj.—fʒij. is directed to be mixed with water, at 120° F., and inhaled for fifteen or twenty minutes, thrice daily. Dr. Snow,‡ after a fair trial, corroborates the opinion commonly entertained, that little benefit is to be derived from it when thus employed. It is occasionally useful as a palliative. As a remedy for Phthisis, Iodine is greatly inferior to Cod Liver Oil, the latter having almost entirely superseded its use. Piorry § reports favourably of Iodine inhalations in Phthisis; but as the majority of his patients took from gr. xx. to gr. lx. of Iodide of Potassium daily whilst under treatment, it is manifestly incorrect to ascribe all the benefit—if any—to the Iodine inhalation. If inhalation be deemed advisable, a few drops of the Tincture (Brit. Pharm.) added to half a pint of hot water may be used. Iodine inhalation has occasionally been found of use in some forms of *Chronic Bronchitis*.

1588. *In Bronchocele or Goitre*, Iodine is peculiarly efficacious, but it does not deserve the character of a specific, which has been attributed to it by some. It was first introduced into practice by Coindet, of Geneva, in 1820, and was subsequently extensively employed by Dr. Manson,‖ of Nottingham. Of 120 cases treated by him, 87 were cured, 10 much relieved, and the remainder were discharged unrelieved. He employed the following formulæ:—℞ Iodin. gr. xxiv., Spt. Vin. Rect. fʒj., M. sumat. gutt. xv.—fʒss. ex aq. ter in die. ℞ T. Iodinii (*ut supra*) fʒj., Liniment. Sapon. fʒj., M. ft. liniment. The latter was applied externally twice daily. The value of Iodine in this disease is universally admitted, but it occasionally fails to effect either a diminution in size, or a removal of the tumour. It is inferior to the Iodide of Mercury (q. v.).

1589. *In Hypertrophy of the Tonsils*, Iodine, employed externally and internally, proves highly serviceable. The aqueous solution (No. 1) may be given internally, and the Tincture applied externally to the throat. The enlarged tonsils themselves may

* Lib. of Med., vol. iii p. 192.

† Cases illustrative of the Power of Iodine, &c., in Tubercular Phthisis, Lond. 1834.

‡ Lond. Journ. of Med., Feb. 1851.

§ Comptes Rend., Jan. 24, 1854.

‖ Med. Researches on Iodine in Bronchocele, Lond. 1825.

also be painted with the Tincture. The application should be repeated every second or third day.

1590. *In Croup*, Mr. Copeman * states that he derived great benefit from the external application of the T. Iodinii (L. Ph.), twice or thrice daily. Its use was, in all instances, attended with great relief to the patient, and probably tends to prevent the formation of false membranes. He relates several cases illustrative of its efficacy.

1591. *In Malignant Ulcers of the Tongue and Tonsils*, Dr. Davies† states that he has met with uniform success with Iodine. The Tincture may be applied locally by means of a fine brush, or made into a gargle, diluted with 7 or 10 parts of water, with the addition of honey. In *Mercurial Ptyalism*, Iodine gargles (Tr. Iod. Comp. (Ph. L.) f℥ij.—f℥v. ad Aq. f℥viij.) are very strongly recommended by Dr. Norman Chevers‡ both as a curative and prophylactic. It is worthy of further trial.

1592. *In Cancer*, Iodine has been used extensively, both internally and externally, with varying success. Dr. Walshe § states that he has great confidence in the power of Iodine friction, when combined with the internal exhibition of the Iodide of Arsenic. Dr. Copland ‖ considers that Iodine, given in very small and repeated doses with Potash, Conium, or Opium, will be found amongst the best remedies which can be used, inasmuch as, when exhibited in this manner, it is both tonic and deobstruent. The benefit derived from it, however, is frequently only temporary. Cases successfully treated with it are recorded by Mr. Hill, of Chester, Drs. Wagner, Tanchon, &c.

1593. *In Schirrous Tumours of the Breast*, Dr. Walshe¶ quotes and corroborates the opinion of Mr. Travers, that the incompressible permanent Tumours of the Breasts of young and middle-aged women, admit of being reduced by the Iodine or mercurial ointment, early resorted to, and steadily persevered in. Mr. Travers states that he has often succeeded in procuring their absorption by these means, when, from the characters they presented, he should otherwise have felt compelled to urge their removal by operation.

1594. *Skin Diseases. In Lupus*, Iodine should be employed externally and internally. It is spoken of in the highest terms by Dr. Davies,** of Hertford, who relates two cases which yielded to its use, when locally applied; and Dr. Houghton†† states that he has seen the most decided benefit from the internal use of Lugol's Solution (No. 1). The Tincture is a good form for external use.

* Prov. Journ., Aug. 12, 1843.
† Op. cit., p. 115.
‡ Indian Ann. of Med. Sci., April 1854.
§ On the Nature, &c., of Cancer, p. 200.
‖ Dict. Pract. Med., art. Cancer.
¶ Op. cit., p. 206.
** Op. cit.
†† Cyc. Pract. Med., vol. iii. p. 396.

1595. *In Erysipelas*, the local application of a Tincture of Iodine (Ɱij. ad Spt. Vin. Rect. f℥j.) was first recommended by Dr. Davies,* who directs it to be painted over the inflamed parts. He relates several cases in which it afforded speedy alleviation of the symptoms, and proved eminently successful. Experience has confirmed its value in this disease. It is of equal, if not superior, efficacy to the Nitrate of Silver.

1596. *Ulcers.* Not only in Scrofulous Ulcers (see *ante*), but in others, it has proved highly successful in the hands of Dr. Davies.† He says that he has used it in several cases of *Chancre*, and that he has found the ulcer heal much quicker than under the usual mercurial application, or the Nitrate of Silver. The Tincture has likewise been used by him *in Ulcers of Carcinomatous character and in Malignant Ulcers of the Lips, Tongue, and Tonsils.* He speaks in the highest terms of its efficacy. Dr. Brainard‡ advocates the use of Iodine vapour in these cases. He dresses the ulcer with simple Cerate, and places the Iodine (gr. j.—iv.) in folds of lint over the wound. Oiled silk and bandages are placed over these to prevent rapid vaporization.

1597. *In Phagedenic Ulcerations*, the Tincture of Iodine has been extensively employed by Ricord.§ He found it very efficacious, and prefers it to all other applications. Mr. Key‖ regards it as one of the most powerful remedies we possess for arresting the threatened destruction of the soft parts. It should be given internally, combined with other remedies. *In Hospital Gangrene*, its local application proved effectual in the hands of Dr. Surdun.¶ Opium was given internally at the same time.

1598. *In Syphilitic Gummata and Nodes*, Mr. Acton** states that the best local treatment consists in painting the affected parts every night and morning with the Tincture of Iodine. *To indolent Bubo*, it is also a valuable application. *Syphilitic Eruptions* improve under its internal use.

1599. *In Pruritus Pudendi*, the local application of the Tincture occasionally affords great relief. In a case of *Pruritus Scroti* which resisted every other treatment for ten days, I witnessed almost immediate benefit from the application of the Tincture. *In Pruritus Senilis*, it is also productive of excellent effects, according to the experience of Mr. E. Wilson.††

1600. *In Onychia*, Dr. Davies‡‡ states that he does not remember a case in which the local application of the Tincture has failed to subdue the disease. It should be applied twice or thrice

* Selections, &c., op. cit.
† Op. cit., p. 127.
‡ Ranking's Abstract, xxxi. p. 139, 1860.
§ Bull. Gén. de Thérap., Feb. 1841.
‖ Med. Chir. Trans., vol. xix.
¶ Gaz. Hebdom. de Méd., Jan. 12, 1857.
** Lectures, Lancet, Jan. 17, 1846.
†† On Diseases of the Skin, p. 271.
‡‡ Op. cit.

daily, in the form of a strong alcoholic solution (gr. xl. ad Spt. Vin. Rect. fl. oz. j.).

1601. *In Lichen, Psoriasis, Impetigo, Porrigo, Ecthyma, and Scabies*, Iodine, internally and externally, has been found successful by Dr. Kennedy.* *In Sycosis, Eczema, and Tinea Capitis*, it has also been found of great service. *In Pityriasis*, it is highly spoken of by Prof. Graves,† who advises the Tincture to be well rubbed into the scalp with a strong brush. *In Favus*, the local application of the Tincture is advised by Mr. E. Wilson,‡ he having in some instances derived benefit from it.

1602. *In Small-pox, to prevent Pitting*, Dr. Sacheon § (U.S.) applied the Tincture once or twice daily in 30 cases. The result of his observations was that, although pitting was not absolutely prevented, the marks and cicatrices were much less evident than those in the same individual to which it had not been applied. It was first proposed by Dr. Crawford, of Montreal, in 1844; and after nine years' experience in its use, he adduces further evidence of its efficacy.‖

1603. *In Leprosy*, it has occasionally been productive of benefit. Dr. Stuart,¶ of the Leper Hospital at Calcutta, relates four cases which improved much under the use of Iodine. In one instance, complete cure followed its exhibition. I have tried it in some cases, but with no apparent benefit whatever; in others with disadvantage. It deserves, however, further trial.

1604. *In Discoloration of the Skin from a long use of the Nitrate of Silver*, Dr. Patterson** strongly advises the internal and external use of Iodine and its salts, as affording the best chance of restoring the natural colour.

1605. *To Corns*, a strong Tincture (ʒij. ad Alcohol fʒj.) is advised by Dr. Davies; and its external application is declared to be very efficacious by Dr. Henderson.†† *To Chilblains*, it is also stated to be an excellent application.

1606. *To Varicose Veins*, the external use of the Tincture or Ointment of Iodine has been advised. Bandages equally applied to the whole length of the limb should be used at the same time. Much benefit is doubtless due to the latter measure.

1607. *Diseases of the Genito-Urinary System. In Diseases of the Prostate Gland*, Iodine is a valuable application. The following mode of using it is advised by Mr. Stafford:‡‡—A bougie is to be charged with Iodine or Iodide of Potassium, after which it is to be dipped into melted tallow, so that a complete coating

* Med. Gazette, May 8, 1840.
† Med. Times, 1846-7.
‡ On Diseases of the Skin, p. 472.
§ Amer. Journal Med Sciences, April 1849 (R).
‖ Montreal Med. Chronicle, Nov. 1853.
¶ Quart. Journ. of Med. and Phys. Sciences, Aug. 1836.
** Dub. Med Press, Aug. 24, 1842.
†† Lancet, April 8, 1840.
‡‡ See Coulson on Dis. of the Bladder, 3rd Ed., 1843.

may be formed upon it. This effectually prevents the Iodine touching any part of the urethra during its passage. Having reached the prostate, the point of the bougie is to rest upon it, when the tallow gradually melts, and brings the Iodine in contact with the diseased part, and, by gently moving the bougie gradually backwards and forwards, the necessary amount of friction is produced. The ointment should be very weak. Mr. Stafford never commenced with it stronger than Potas. Iod. gr. j. —Ung. Cetacei ʒj., and even this caused much irritation. The strength may be cautiously increased. Prof. Walther* advises friction of the gland with Ung. Iodinii, by means of a finger introduced into the rectum. He found it very efficacious.

1608. *In Enlargement and Indurations of the Ovaries*, the external application of Ung. Iod. Co. (L. Ph.) may be used with decided advantage. The ointment should be steadily rubbed in for fifteen or twenty minutes every night and morning. Sir B. Brodie† speaks highly of it in these cases. *In subacute Ovaritis*, Dr. Kennedy, of Dublin, employs frictions of Iodine ointment to the roof of the vagina. The advantage of the practice is very questionable. In these cases, Iodine may advantageously be given internally. Employed externally and internally, it occasionally appears to be of service in incipient *Ovarian Dropsy*. The question of the propriety and safety of *Iodine injections in the treatment of Ovarian Cysts* has been much discussed. M. Boinet‡ has collected the results of forty-five cases, of which thirty-one were cures and fourteen failures, and amongst the latter nine deaths. From a consideration of all these cases, he draws the following conclusions: —

1. That the operation of injecting Iodine into these ovarian cysts was unattended by any kind of danger, and that equally, whether the cysts were simple or complicated, unilocular, or multilocular.

2. That the operation has frequently brought about a radical cure (two in three), and that it has always produced some remarkable amelioration, even when a cure was not to be hoped for.

3. That simple unilocular serous cysts, even when very voluminous, have usually been cured by a simple operation.

4. That a great number of punctures and injections have been practised upon the same cyst without any inconvenience whatever.

5. That it is desirable to operate at an early period, before the cyst has become multilocular, and before the general health has

* Med. Chir. Rev., No. lvi. p. 550.
† Med. Gaz., vol. v. p. 750.
‡ Gaz. Hebdom. de Méd. et Chir., Nov. 21, 1856.

suffered; that it is expedient to operate as soon as the cyst can be detected, if the cyst is making any progress; and that the operation ought to be repeated as soon as the liquid begins to re-accumulate.

6. That the canula ought to be retained in exceptional cases, and where the operation has frequently been repeated without success.

1609. *In Cancer of the Uterus*, Dr. Ashwell* states that he has derived great benefit from the following ointment:—℞ Iodinii gr. xv., Potas. Iod. ℈ij., Ung. Cet. ʒiss., M. A portion, the size of a small nutmeg, is to be introduced on the point of the finger into the vagina, and rubbed into the diseased part, every night, for ten minutes.

1610. *In non-malignant Tumours of the Uterus*, Dr. Ashwell† speaks well of Iodine employed externally and internally. He states that he has seen tumours of the cervix uteri disappear under its use; and when they are seated in the walls, or are projecting into the cavity of the uterus, he found their further growth controlled, though not altogether removed, by the same remedy. Locally, he employed the ointment named in the last section.

1611. *In Congestion and Ulceration of the Os Uteri*, the following application has been favourably spoken of:‡—℞ Iodinii ʒj., Potas. Iod. ʒij., Aq. Dest., Spt. Vini Rect. āā fʒij., M. ft. applicatio.

1612. *In Dysmenorrhœa*, Dr. Churchill§ states that, in a case where a false membrane was habitually discharged, he effected a cure by repeated applications of the caustic Tincture of Iodine to the cervix uteri. *Chronic Uterine Hæmorrhages*, from whatever cause, have been successfully treated by Dr. Dupierris, of Havannah, by means of injections of Iodine‖ (1 part of Tr. Iod. to 3 of Water). Dr. Savage¶ relates two cases of *Obstinate Menorrhagia* cured by this means. In both cases he employed the officinal Tincture (Ph. Lond.): in one he used fʒiij.; in the other fʒij., diluted with an equal quantity of water.

1613. *In Hydrocele*, the plan of injecting a diluted Tincture of Iodine (1 part to 3 of Water) was first introduced by Sir R. Martin, in the Calcutta General Hospital. It has been generally found much more efficacious in obtaining a radical cure than the old port-wine or any other injections. Velpeau** employed it in 300 cases without a single untoward accident; and Mr. Liston†† speaks highly of its efficacy. In 1148 cases treated by Iodine

* On Diseases peculiar to Women, p. 392.
† Op. cit.
‡ Med. Times, May 12, 1849.
§ Midwifery, p. 61.
‖ For mode of application, consult Ranking's Abstract, vol. xxv. p. 230.
¶ Lancet, Dec. 5, 1857.
** Med. Chir. Rev., Oct. 1844.
†† Pract. Surg., p. 462.

injections, there were only three failures.* It is not necessary to throw in more than f℥j.—f℥ij. of the fluid, and it does not much matter whether or not all of it is evacuated from the cavity.

1614. As a radical cure of *Hernia*, M. Jobert† employed with success in three cases the injection of the Tincture of Iodine into the Hernial Sac. The Tincture is not allowed to remain permanently in the sac, but is withdrawn by means of a syringe. This mode of treatment was first proposed by Velpeau in his "Annales de Chirurgie."

1615. *In Fistula in Ano*, Iodine injections are advised by Mr. Clay,‡ of Manchester. He relates one case of long standing cured by its use. A glass syringe should be used. Other cases successfully treated by this means are related by Dr. Boinet.§ A case of *Spina Bifida* successfully treated by Iodine injections is recorded by Dr. Brainard.‖ The strength of the solution employed was Iodine gr. ⅛, Iod. of Potassium gr. ½, to Water f℥j.

1616. *In Amenorrhœa*, *Leucorrhœa*, *Chlorosis*, *and Gleet*, it has been employed by M. Dorvault,¶ but it is inferior to many other remedies. Dr. Copland considers it calculated to prove useful in obstinate *Chlorosis*. In cases of *Amenorrhœa*, Dr. Riget** advises frictions of Iodine over the abdomen.

1617. *Diseases of the Abdominal Viscera. In Chronic Peritonitis*, occurring in scrofulous subjects, Iodine occasionally proves useful. Dr. M'Adam†† states that he has employed Lugol's formulæ in several instances, and found them valuable auxiliaries. The Iodureted Ointment (No. 5) was applied by friction on the abdomen, and the Mineral Water (No. 1) was given internally. In the *Vomiting of Pregnancy*, Dr. Eulenberg speaks highly of the Tincture of Iodine in very small doses. He found it likewise useful in relieving the *Cardialgia*.‡‡

1618. *In Chronic Diseases of the Liver*, the value of Iodine has been the subject of much difference of opinion. Dr. Abercrombie mentions that, in several cases of chronic affections of the liver, accompanied by jaundice, he has seen very good effects from the external use of Iodine as an ointment (℥ss. ad Ung. ℥j.). A favourable statement of its efficacy has also been given by Dr. Milligan and others. Mr. Twining, on the contrary, has found it remarkably unsuccessful, and he points out an effect resulting from its administration in other complaints, which renders it

* Chelius's Surgery, trans. by South.
† Med. Times and Gaz., Sept. 1854.
‡ Med. Gaz., Sept. 1843.
§ Gaz. Méd. de Paris, Dec. 1853.
‖ Ranking's Abstract, xxxiii. p. 191, 1861.
¶ Med. Gaz., Jan. 10, 1851.
** Med. Times, Dec. 1, 1860, p. 540.
†† Cyc. Pract. Med., vol. iii. p. 308.
‡‡ Ranking's Abstract, xxiv. p. 181.

necessary to be cautious in employing it in affections of the liver. Of twenty-three Europeans to whom he had prescribed it internally, for the cure of various diseases not considered hepatic, five became affected with pain in the right side. "The observations of our professional brethren in Europe," observes Mr. Twining, "afford reason to believe that Iodine, administered in large doses, is liable occasionally to excite pain in the region of the liver; and, in some instances, the existence of Hepatitis in such cases has been proved by *post-mortem* inspections." Dr. Christison alludes to two instances in which Hepatitis occurred in persons who had recently taken large doses of Iodine, and thinks it not improbable that Iodine possesses the power of inflaming the liver. On the other hand, *chronic enlargement of the liver* to such an extent that the organ extended below the umbilicus, the sequel of remittent fever in a youth of seventeen, was entirely removed by frictions with strong Iodine ointment, and a course of purgatives. (Dr. W. Thompson.*) I cannot but think that the evil consequences of Iodine, as alluded to by Mr. Twining, are overrated. I have given Iodine in a very large number of cases, without seeing it induce pain in the side, or any other ill effects; and I have seen it, in the form of Iodide of Potassium, given in chronic diseases of the liver with evident benefit. Dr. Graves† regards Iodine as a valuable adjuvant in enlargement of the liver after fever. He considers that it gives vigour to the constitution, and tends in a very remarkable manner to promote the absorption of the morbid products on which the enlargement depends. In *Hydatid Cysts* of the Liver, the injection of the cavity with Iodine has been practised by M. Boinet.‡

1619. *In Enlargements, and Chronic Affections of the Spleen*, Iodine, externally and internally, may be used with advantage. One of the largest enlargements I have met with yielded to its use. Sir R. Martin§ observes that where there is mucous intestinal irritation, attended by a hectic form of fever, he has found benefit from the following mixture:—℞ T. Iodin., T. Ferri Sesquichlor. āā f℥ss., Aq. f℥j., M. gutt. x. ter in die ex aq. sumend. He advises frictions with Croton Oil; but the Ung. Iod. (L. Ph.) is preferable. *In the tuberculated condition of the Spleen*, which is met with in children, Dr. Bigsby strongly advises small and long-continued doses of Iodine.

1620. *In Ascites*, Iodine proves occasionally serviceable; but, observes Dr. Thompson,‖ it does not act beneficially when the abdomen is tense; but after tapping, and reducing the excite-

* Lib. of Med., vol iv. p. 198.
† Clin. Lect., vol. ii. p. 363.
‡ Med. Times and Gazette, March 5, 1864.
§ Tropical Climates, &c., op. cit., p. 229.
‖ Dispensatory, p. 496.

ment by antiphlogistics, it completely removes the serum. Mr. Copeman* states that he has derived great benefit from the following mixture :—℞ Iodinii ♏j., Iod. Potas. ♏ij., Aq. f℥vij., M. Of this, the dose for adults is ♏x.—xv.—xxv.; and for children, ♏v.—x., thrice daily. In a case of Ascites in a girl aged eighteen, M. Leriche,† of Lyons, after the operation of paracentesis, injected the following mixture into the peritoneal cavity :—℞ T. Iodinii f℥j., Potas. Iod. ℈j., Aq. f℥viij., M. Four ounces only of this injection were returned; the remainder was left in the abdomen. Some irritation followed, but the girl was discharged cured, nineteen days after the operation. M. Dieulafoy ‡ also relates two cases cured by Iodine injections. No ill effects resulted in either instance. Other examples are recorded by Dr. Costes.§ (See also Potassii Iodidum.) The following rules for using Iodine injections in Ascites are given by Tessier :‖—1. Do not empty the peritoneal cavity before using the injection. Fatal peritonitis has followed a neglect of this rule. 2. The strength of the injection is to be in conformity with the composition of the peritoneal fluid, the strength being in direct relation to its alkalinity and albuminosity. 3. Practise a preliminary tapping some days previously if the abdomen is very voluminous, in order to diminish the peritoneal surface and so lessen the risk of peritonitis.

1621. *Other Diseases. In Inflammation of the Joints*, the external use of Iodine is strongly advocated by Dr. Davies,¶ who considers it superior to the usual modes of treatment. He employs a tincture (♏ij., Alcohol f℥j.); but at the commencement of treatment this should be diluted to about half its strength or more. The Tincture diluted, he states, may be applied at once, all over the inflamed joint, with perfect confidence, not only that no *mischief*, but that *good* will be the result. But when the disease has been pretty well advanced, and where the swelling has been considerable, he prefers leeching the joint first, and then, a few hours after the bleeding has ceased, to apply the Tincture. It should be applied every day, for two or three times; then, every other or every third day, according to circumstances. If the part should acquire an increase of temperature, he prefers to lay over the joint a rag soaked in a spirit lotion; but this need not interfere with the use of Iodine. No lead or zinc lotion, or one medicated in any way, should be employed. (Davies.)

1622. *In Hydrarthrosis*, Iodine injections have been success-

* Med. Gaz., April 8, 1842.

† Med. Times, vol. xvi. (1847), p. 275.

‡ Bull. de l'Acad. Roy. de Méd., June 1844.

§ Gaz. Méd. de Paris, Oct. 29, 1853.

‖ Ibid., April 22, 1854.

¶ Selections in Pathology, &c., p. 106.

fully employed by Velpeau and others. M. Bonnet* advises a mixture of 1 part of Iodine, 2 of Iodide of Potassium, and 8 of Water. He directs the quantity injected to be very nearly the same as that of the fluid drawn off. The puncture should be as small as possible, care being taken that air does not enter the joint. It is not necessary that the whole of the effused liquor should be allowed to escape. Inflammation generally ensues, but this subsides in a few days. The best position for making the puncture is immediately above the patella, the leg being fully extended at the time. Applied externally in strong solution, it often materially assists in causing absorption of the effused fluid. Five cases of *Hydrarthrosis of the Knee-joint*, successfully treated by Iodine injections, are related by Dr. Macdonnell,† of Montreal.

1623. *In Gout*, Iodine has been advised, both externally and internally. Speaking of its internal use, Dr. Robertson‡ remarks, "There can be little question, that in many chronic and no small proportion of irregular Gout cases, and in many cases of confirmed Gout, Iodine, when carefully used between the paroxysms, is most useful; the more so of course, other things being equal, the more cachectic the habit, or the more that a scrofulous condition seems to be mixed up with the Gout." It should be administered in small doses and in the mildest forms. Externally applied, it is a remedy of great value. It was first proposed by Dr. Davies, who states that its application (Iodine ϑij., Spirit f℥j., Water f℥vj.—f℥j.) once or twice affords almost immediate relief. Dr. Todd§ also recommends a similar practice; and Dr. Pereira‖ states, that, according to his experience, no remedy gives so much relief, and that he has rarely known it to fail. "It deserves, however," adds Dr. Pereira, "especial notice that the skin of different individuals is most unequally susceptible of its influence; in some few it excites great pain, whilst, in others, it produces scarcely any. It is particularly useful when any effusion into the synovial membranes or sheaths has taken place." (See also Potassii Iodidum.)

1624. *In Acute Rheumatism*, applied as in Gout, it is of great service. It should not interfere with internal treatment. It may also be given internally, with Quinine. Dr. Nevins¶ states that he has seen benefit from the combination. *In Rheumatic Gout*, Trousseau** speaks highly of the value of the Tincture

* Med. Chir. Rev., April 1843.
† Ranking's Abstract, xxvi. p. 201; and xxvii. p. 193.
‡ Essay on Gout, p. 310.
§ Pract. Remarks on Gout, pp. 107-8.
‖ Mat. Med., vol. i. p. 410.
¶ Trans. of Lond. Pharm., 1851, p. 512.
** Journ. de Méd. et de Chir. Prat., Nov. 1861.

given internally, commencing with small doses and gradually increasing them till 150 drops are taken daily, in divided doses. In *Gonorrhœal Rheumatism*, Dr. Fuller* directs the cold douche to be first applied to the affected joint; then active friction for a few minutes; and lastly, lint steeped in a weak solution of Iodine to be laid on the part, which, covered with layers of flannel, should be left on till next morning. This he regards as the most effective treatment.

1625. *Encysted Tumours.* M. Borelli,† of Turin, proposes to treat these by the injection of a strong alcoholic solution of Iodine. He directs a small oblique opening to be made into the cyst; through this, he evacuates the contents, and then throws in the injection by means of a syringe. This is left in the cyst, the aperture being closed by plaster. The pain lasts about twenty-four hours, and inflammation may be reduced by poultices. The cyst becomes detached, and may easily be removed by the forceps.

1626. *In Scarlatina*, when the state of the urine or other circumstances indicate the extension of the disease to the kidneys, Mr. Erasmus Wilson‡ found the compound Tincture of Iodine (Ph. L.), containing an additional ʒj. of Iodine to the f ʒj., used as a counter-stimulant, was productive of great benefit, and afforded great relief. "It possesses the advantage," he observes, "of ready application, and may be used without the slightest disturbance of the patient."

1627. *In obstinate cases of Hoarseness*, Dr. Graves§ found that, in some instances, he has derived benefit from the inhalation of the vapour arising from T. Iodinii and T. Conii, added to hot water in a proper apparatus. If the disease resists these means, he recommends Iodine in small doses internally, and change of air.

1628. *In Chronic Pleuritis*, Dr. Stokes strongly recommends Iodine, internally and externally. He advises Oj. of Lugol's Mineral Water (No. 1) daily, and ʒij. of Ung. Iod. to be rubbed into the side. Dr. Williams‖ prefers the Iodide of Potassium (gr. ij.—iij.) thrice daily, and, in very asthenic cases, the Iodide of Iron, in smaller doses. These medicines, he adds, seem especially calculated to promote absorption, and, when combined with the use of blisters, he states that he has found none so efficacious in hastening the removal of pleuritic effusions, especially when these partake of a purulent character.

1629. *In Chorea*, Iodine was successfully employed by Dr. Manson.¶ He relates a large number of cases which were either

* Lancet, Jan. 31, 1863.
† Med. Gaz., Dec. 20, 1850.
‡ Diseases of the Skin, p. 74.
§ Clin. Lect., vol. ii. p. 3.
‖ Lib. of Med., vol. iii. p. 124.
¶ Med. Researches on Iodine, &c., p. 187.

benefited or cured by it, even when other remedies had failed. The only other remedy employed was cathartics. He gave ♏x.—xv. of his Tincture (see *Bronchocele*) thrice daily.

1630. *In Albuminuria*, Iodine has occasionally proved successful. Dr. Gutbrod* has published several cases illustrative of its efficacy. He also employed the Iodide of Iron. *In Diabetes* in the horse, Dr. Dick obtained a cure by large doses of Iodine (℥j. twice or thrice daily). Might not the same remedy prove serviceable in man? It deserves a trial, as Iodine has certainly a marked action on the organ which has much to do in the production of the sugar, viz. the liver.†

1631. *In Opacities and Ulcerations of the Cornea*, especially when arising in scrofulous subjects, Iodine, externally and internally, proves highly serviceable. M. Lohsse‡ relates a case where the opacity consequent on Syphilitic Ophthalmia was so considerable, as almost to destroy vision, but which yielded to a collyrium containing Iodine (gr. j., Pot. Iod. gr. ij., Aq. f℥vj.).

1632. *In Glanders*, it has been used with apparent success. M. Ludiche§ relates a case in which Iodine, externally and internally applied, was used with the best effect. The Tincture was applied to the mucous surfaces of the mouth and throat, and alkaline baths were employed at the same time. The disease reappeared at the end of four months, but rapidly yielded to the same remedies.

1633. *In ununited Fractures*, frictions with Iodine are occasionally useful. Of eleven cases mentioned by Mr. Norris,‖ five were cured by Iodine. It may also be given internally.

1634. IPECACUANHA. Ipecacuanhæ Radix. Ipecacuan. The root of Cephaelis Ipecacuanha. *Nat. Ord.* Cinchonaceæ. *Linn. Syst.* Pentandria Monogynia. *Source*, the Brazils and Mexico.

Med. Prop. and Action. Emetic, in doses of gr. xx.—gr. xxx. of the powdered root; expectorant and diaphoretic, gr. j.—gr. ij.; alterative, gr. ¼—½. Active principle, *Emetina* (see that article). It possesscs considerable sedative powers, as is shown by its influence in hæmorrhagic diseases. As an emetic, it is mild, safe, and certain; it does not operate so rapidly as some other emetics, and does not leave that amount of depression and weakness which follows the use of Tartar Emetic. It is to be preferred, when the powers of the stomach require to be maintained, and when vomiting is requisite in delicate subjects, and in children; for the latter, the Vinum Ipecacuanhæ, in doses of ♏xx.—fl. drm. j., till it cause vomiting, is the best formula. Some persons, from idiosyncrasy, are unable to take Ipecacuanha; in such, even the smell of the powdered root produces a distressing sense of suffocation.¶ The

* Gaz. des Hôpitaux, Sept. 7, 1843.

† Ranking's Abstract, 1859, vol. xxix. p. 83.

‡ Brit. and For. Med. Rev., July 1, 1843.

§ Journ. des Conn. Méd. Chir., March 1843.

‖ See Med. Gaz., Nov. 15, 1850.

¶ See a case related by Dr. Watson, Lectures, vol. ii. p. 52.

powder should be kept in closely-stoppered bottles, and exposed to the light. Boiling renders it inert; it should not, therefore, be given in decoction. Infusion of Nut Galls is the best antidote for an over-dose. Its external application is highly spoken of by Dr. Turnbull,* who considers it far superior to Tartar Emetic as a counter-irritant. He advises ʒij. of the powder (or Emetine gr. xv.) to be incorporated with ʒij. of Olive Oil and ʒiv. of Lard. This, rubbed on the skin for a few minutes, once or twice a day, produces a copious crop of small pustules, unattended with pain, which remain out for many days and leave no scars. In this last point it has an advantage over Tartar Emetic ointment, for which Dr. Turnbull proposes it as a substitute. Dr. Graves† states that he often gives the infusion of Ipecacuanha in the form of enema: and that, employed in this manner, it is a remedy of very considerable value, and not sufficiently appreciated by most modern practitioners. When applied locally in the form of poultice or paste to *venomous bites or stings*, it often allays in a remarkable manner the pain and irritation, and, in such cases, is regarded by some as almost a specific.

Offic. Prep. 1. Pulvis Ipecacuanhæ cum Opio. (See art. PULVIS IPECACUANHÆ CUM OPIO.)

2. Trochisci Morphiæ et Ipecacuanhæ (Hydrochlorate of Morphia grs. xx.; Powdered Ipecacuan grs. lx.; Tincture of Tolu fl. oz. ss.; Refined Sugar oz. xxiv.; Powdered Gum Arabic oz. j.; Mucilage of Gum Arabic fl. oz. ij. or q. s.; Boiling Distilled Water fl. oz. ss. To be divided into 720 lozenges). Each lozenge contains gr. $\frac{1}{36}$ of Hydrochlorate of Morphia, and gr. $1\frac{1}{2}$ of Ipecacuan.

3. Vinum Ipecacuanhæ (Ipecacuan bruised oz. j.; Sherry Oj. Prepared by maceration). Dose, as an emetic, fl. drs. iij.—fl. drs. vj. As an expectorant, ɱv.—fl. drm. ss.

Dose of Ipecacuanha: as an emetic, gr. xx. or more; as an expectorant and diaphoretic, gr. $\frac{1}{2}$—gr. ij.

1635. *Therapeutic Uses. Diseases of the Lungs, &c. In Asthma* of a purely spasmodical character, much benefit results from the use of Ipecacuanha. Akenside's‡ method has been extensively and advantageously employed. He directs ʒj. of the powder during the paroxysm, to induce vomiting, which generally affords great relief. In the intervals, he advises gr. v. to be taken every morning, or gr. x. every other morning. This produces nausea, and sometimes vomiting; but if persevered in for four or six weeks, effects a great amelioration of the symptoms, if not a cure. Smaller doses sometimes answer better.

1636. *In Chronic Bronchitis*, Dr. C. B. Williams§ states that he found Ipecacuanha, in doses of gr. j.—ij. of the powder, or in doses of ɱxx.—fʒss. of the Wine, very serviceable. It may be repeated several times daily, combined with Squills, &c., as the case may require. In mild attacks, occurring in persons of a plethoric habit, it is of itself sufficient for a cure. Its use is contra-indicated in case of profuse night sweats.

1637. *In simple Catarrh*, particularly when occurring in children, Ipecacuanha is highly serviceable. It may be given at first in nauseating doses; and afterwards in such doses as will keep up a slight degree of nausea. It produces copious diaphoresis, and may always be safely employed.

* Lancet, May 7, 1842.
† Clin. Lect., vol. i. p. 167.
‡ Med. Trans., vol. i. p. 93.
§ Cyc. Pract. Med., vol. i. p. 321.

1638. *In Phthisis*, Ipecacuanha is an eligible emetic in the early stage of the disease. Dr. M. Hughes* advises it (gr. vj., Cupri Sulph. gr. ij.) to be taken an hour before breakfast, every morning, or every second, third, or fourth day, according to the strength of the patient and the character of the disease. (See EMETICS.)

Hæmoptysis. See *Hæmorrhages.*

1639. *In Hooping-Cough in the acute stage*, Dr. Watson† advises Ipecacuanha, in doses of gr. ss.—iss., three or four times a day. This generally keeps the bowels open, and also seems to have a beneficial operation on the mucous membrane of the air-passages. If the cough is very troublesome or urgent, opiates may be conjoined. An emetic, given at the outset of the attack, has a beneficial effect. After its operation, the following formula of Mr. Pearson's will be found very useful:—℞ Vin. Ipecacuanhæ gutt. v., T. Opii gutt. j., Sodæ Carb. gr. ij., Aquæ q. s. ft. haust. 4tis vel 6tis horis sumend. It is a valuable formula in ordinary cases. In young children the Opium may be omitted.

1640. *In Aphonia*, Dr. Robertson‡ states that he has seen the most conspicuous benefit derived from Ipecacuanha in full emetic doses, thus:—℞ Vin. Ipecacuan. ʒix., Oxymel Scillæ ʒiij., M. ft. haust. This is to be repeated every three or four days, and if the Aphonia arise from a catarrh, diluents and sudorifics should be employed at the same time.

1641. *Diseases of the Abdominal Viscera. In some forms of Dyspepsia*, particularly where the liver appears to be torpid and inactive, and the biliary secretion is of a vitiated character, Ipecacuanha, in doses of gr. ¼—gr. ½, daily, in the form of pill, with Ext. Gentianæ, Pil. Rhei Co., or Taraxacum, proves highly serviceable. Its mode of action is obscure, but under its use the urgency of the symptoms subsides, the tone of the digestive organs improves, and the evacuations assume a healthy character. It may, in some instances, be advantageously conjoined with a mild mercurial, but, under all circumstances, it requires to be persevered with in order to obtain its full influence. *In functional derangement of the Liver*, Ipecacuanha often proves highly serviceable when given in small and long-continued doses.

1642. *In Dysentery*, Ipecacuanha was first employed as a remedy by Piso,§ who brought it from the Brazils, and gave it in drachm doses, and in the form of infusion. But it was not until Helvetius, who had come from Holland to Paris, gave some of it, with a knowledge of its virtues, to the physician of Louis XIV., who employed it successfully in the case of the Dauphin, then dangerously attacked by Dysentery, that it came generally

* Guy's Hosp. Reports, No. x.
† Lectures, vol. ii. p. 67.
‡ Cyc. Pract. Med., vol. i. p. 118.
§ De Med. Brazil, lib. ii. Amst. 1658.

into use. Marais,* and soon afterwards Sloane,† Heister, Vater, &c., further demonstrated its good effects. (Copland.‡) Since that date, it has been employed by the highest authorities; and in modern times we find Annesley, Twining, Ainslie, Geddes, Mortimer, Ballingall, Playfair, Balmair, and Fergusson, recording their testimony as to its value and efficacy in this disease. My own experience fully bears out the eulogiums which have been passed upon it; and, indeed, there can be but one opinion, that when given in such doses as to establish and keep up a gentle moisture on the skin, together with a slight degree of nausea, its operation is most beneficial. I have never observed any advantage from inducing vomiting by its means in this disease; the most benefit appearing to accrue, when a slight degree of nausea is kept up, without producing its more powerful effect. Mr. Twining§ trusted to it alone (gr. vj., combined with Ext. Gentian.), repeating it twice or thrice daily. He premised a full blood-letting, and employed Pulv. Jalapæ Co. ʒj. as a purgative. Mr. Annesley's formula is very serviceable, and one for a long period very generally employed:—℞ Pil. Hydrarg. gr. ij.—iij., Pulv. Ipecac. Rad. gr. j.—ij., Opii gr. ¼, ft. pil. 4tis vel 5tis horis sumend. When the acute stage has subsided, it may be combined with great advantage with the Nitrate of Silver. There is no form or stage of the disease in which it does not prove beneficial, either alone or combined with Opium, or other medicines. Its beneficial operation is probably due to its power of diminishing morbid arterial action, and determining to the skin. (See PULV. IPECAC. CUM OPIO.) The treatment of Dysentery by large doses of Ipecacuanha (gr. xxx.—gr. lx.), uncombined with other remedies, has been re-introduced by Mr. E. J. Docker,‖ who remarks that the action of these large doses is certain, speedy, and complete. "In all constitutions, robust as well as delicate, under all circumstances the result is the same. In the very worst cases, when the strength of the patient is almost exhausted, after the whole range of remedies has been tried in vain, the disease running its course swiftly and surely to a fatal issue, 90 grs. of Ipecacuanha have been given, and forthwith the symptoms have entirely changed, the disease itself being literally cured." Of fifty-three cases thus treated, he lost only one, and that was complicated with Abscess in the Liver. This treatment has been extensively tried in the Madras Presidency and other parts of the East, and the results form the substance of an excellent paper by Dr. W. R. Cornish.¶

* Ergo Dysent. Affect. Radix Brasiliensis, Paris, 1690.

† Philosoph. Trans., No. ccxxxviii.

‡ Dict. Pract Med, vol. i. p. 731, from which the preceding sketch is extracted.

§ Clin. Illus. of Diseases of Bengal, vol. i. p. 69.

‖ Lancet, July and Aug. 1858.

¶ Madras Med. Journ., Jan. 1861, p. 41.

The treatment consisted of administering powdered Ipecacuanha in doses of gr. xxx.—gr. xl.—gr. lx., according to the severity of the case, and repeating the dose every fourth or fifth hour till amendment was manifest. To enable the stomach to bear these doses, Mr. Docker precedes them with f℥ss. of Tr. Opii, and applies sinapisms to the stomach. Others, including Dr. Arthur, whose experience is great, omit these means, considering that the vomiting is attended with the most salutary effects, and that without it Ipecacuanha would lose half its efficacy. In recent cases the disease generally begins to yield in one or two days, and the medicine is then given at longer intervals. In convalescence the Ipecacuanha is omitted, and small doses of Blue Pill with Opium once or twice daily, or the mineral acids, are substituted. To sum up, it appears—1. That acute dysentery is more successfully and speedily treated by large doses of Ipecacuanha than by other means. 2. That it is more effectual in the acute than in the chronic forms. 3. That large doses, such as those mentioned above, may be given with perfect safety, without any fear of hyper-emesis or other ill effects. 4. That, as a general rule, it is less successful with natives than with Europeans. The reader will do well to consult Dr. Ewart's valuable paper on the subject in the eighth volume of the "Indian Annals of Medical Science" (1863), p. 396. The Ipecacuanha treatment in *Infantile Dysentery* has been tried with success in the Children's Hospital, London, by Dr. Hillier.*

1643. *In Diarrhœa*, Ipecacuanha proves very serviceable, often effecting a cure when other medicines have proved ineffectual. It has been praised by Linnæus,† Fothergill,‡ Sir G. Baker,§ and others. It may be combined with Rhubarb, Hydrarg. c. Cret., Argent. Nit., Plum. Acetas, &c., according to the circumstances of each case. When it fails in small doses, a full dose, to produce emesis, often proves effectual.

1644. *Other Diseases. In Hæmoptysis, Hæmaturia, Hæmatemesis, Epistaxis, and in internal Hæmorrhages generally*, Ipecacuanha appears to exercise a powerful influence. Dr. Osborne considers that the production of vomiting is necessary to develop its influence; but Mr. Trenor‖ has published numerous interesting cases, in which it was given in such doses as to produce nausea, without actual vomiting: and this procedure was attended with marked benefit, arresting the hæmorrhage and restoring heat and life to patients who were in a state of collapse from excessive loss of blood. The doses given by Mr. Trenor varied from gr. j.—ij. every fifteen or thirty minutes, until nausea

* Med. Times and Gaz., Jan. 30, 1864.

† Amœn. Acad., vol. viii. p. 246.

‡ Med. Obs. and Inquiries, vol. vi.

§ Trans. of Coll. of Physicians, vol. ii.

‖ Dub. Journ., vol. xviii. p. 481.

was felt; when the benefit was generally evident, the medicine was discontinued. The value of Ipecacuanha in this class of diseases is not sufficiently attended to; at the same time it is better to avoid vomiting, particularly in hæmorrhage from the lungs and stomach, although Dr. Osborne observes that he never saw it produce any ill effect. Prof. Graves* also bears testimony to the efficacy of this treatment.

1645. *In Uterine Hæmorrhage and Menorrhagia*, Ipecacuanha, given in full emetic doses, has often been followed by the best effects. Dr. Osborne,† a strong advocate for its use in these cases, advises ℈j. of the powdered root in the evening, followed by an acidulated draught in the morning. The discharge usually ceased in twenty-four hours; and if a relapse occurred, a repetition of the emetic never failed to render the cure permanent. Dr. Tyler Smith‡ thus explains its action in these cases. "Ipecacuanha," he says, "by its emetic action, excites contraction of the abdominal muscles, and compression of the uterus, which may, in turn, re-excite some amount of uterine reflex action, but beyond this it appears to have a special action upon the uterus, increasing its contractile power beyond what could be imagined to occur from the merely secondary effects of vomiting." He adds, "Ipecacuanha, then, appears to influence the medulla oblongata and the lower medulla spinalis. This double action of Ipecacuanha upon the two extremities of the spinal centre is very extraordinary."

1646. *In Typhus Fever*, an emetic at the commencement of the attack is sometimes highly serviceable. "We have never seen," observes Dr. Duncan,§ "more decidedly beneficial effects from the use of any medicine whatever than from the exhibition of an emetic of Ipecacuanha at the commencement of Typhus Fever. This, succeeded by a diaphoretic regimen, when administered sufficiently early in the disease, frequently cuts it short at once; and when it fails in this desirable object, it always has a beneficial influence on the progress of the fever."

1647. *In Hydrocephalus and in Infantile Convulsions*, Dr. Hannay‖ strongly advises the following application as a counter-irritant:—℞ Pulv. Ipecac. R., Ol. Olivæ ää ℥ij., Adip. ʒss., M. He directs the part which it is wished to irritate to be rubbed freely with this liniment, for fifteen or twenty minutes thrice daily, and then to be enveloped in flannel. This produces in thirty or thirty-six hours an eruption, which remains out for three or four days. He states that he has seen great amelioration of the symptoms follow the use of this ointment.

* Clin. Lect., vol. ii. p. 141.
† Trans. of Irish Coll. of Physicians, vol. v. p. 18.
‡ Lancet, Dec. 16, 1848.
§ Edin. Dispensatory, p. 80.
‖ Edin. Med. and Surg. Journ., Oct. 1, 1843.

1648. *In Hysteria*, it is always of importance to keep off a paroxysm when one is impending, and Dr. Conolly* states that this may often be done by the prompt administration of Pulv. Ipecac. ʒss. This will produce a full emetic effect, and, if it does not prevent, will at least greatly modify, the violence of the attack.

1649. *In Erysipelas*, M. Vidal strongly advises the use of Ipecacuanha. He states that he has seen it arrest the disease even where the cerebral symptoms have become very decided. Mr. Nunnelly prefers it as an emetic in the commencement of the disease to Antimony, as not producing the same debilitating effect on the constitution.

1650. *In Urticaria, Nettle-Rash*, Ipecacuanha emetics (gr. xx.), repeated every other morning for two or three weeks, are sometimes an effectual cure. Lotions of the Acetate of Lead or Carbonate of Potash may be locally applied. If these fail, Dr. Green advises the use of the vapour bath.

1651. *In Cholera*, Ipecacuanha has occasionally been employed, but, by reference to Mr. Ross's table (sect. 1414), it will be seen that the mortality is very large under its use. It appears that this has reference to the medicine in full emetic doses, but I would suggest the employment of it in small nauseating doses, in the same manner as advised in Hæmorrhages by Mr. Trenor. In the latter diseases, even when a state of collapse supervened, the vital powers recovered themselves in a striking manner under the use of Ipecacuanha; and the same remedy should be tried in Cholera, even during the stage of collapse. The many points of analogy between Cholera and profuse Hæmorrhage would alone suggest its probable utility. From experience I am unable to speak of its merits or demerits.

1652. Pulvis Ipecacuanhæ cum Opio. Powder of Ipecacuan and Opium. Pulvis Ipecacuanhæ Compositus. Compound Ipecacuan, or Dover's Powder. *Prep.* Ipecacuan and Opium in Powder āā oz. ss., Powdered Sulphate of Potash oz. iv. Gr. x. contain gr. j. of Opium.

Med. Prop. and Action. Diaphoretic, in doses of gr. v.—x. It is also narcotic, although the Ipecacuan appears greatly to modify the action of the Opium; at the same time that the nauseating action of the Ipecacuan is controlled by the Opium. It is a very valuable formula, but its operation is far from uniform; in some giving rise to emesis, and very frequently, amongst the Sepoys, to a purgative operation. Diluents, although they promote the diaphoretic action, should be avoided immediately after taking the powder, as, from such a circumstance, it is very apt to be rejected by vomiting.

Dose, gr. v.—x. or more.

1653. *Therapeutic Uses. Dysentery.* The following treatment,

* Cyc. Pract. Med., vol. ii. p. 578.

proposed by Dr. Somers, appeared to Sir J. M'Grigor to be so judicious, and proved so successful in the first attacks of pure unmixed Dysentery, that he recommended its general adoption in the army. First, the patient was bled freely; immediately afterwards, gr. xij. of Dover's Powder was administered. This was repeated three times, at the interval of an hour. Plenty of warm Barley Water was at the same time given, and profuse sweating encouraged for six or eight hours. A pill containing gr. iij. of Calomel and gr. j. of Opium was exhibited every second night; and in the intervening days, ʒij. of Epsom Salts in Oij. of light broth. The venæsection was repeated when the strength and the pulse permitted it, until the stools were free or nearly free from blood; and Dover's Powder, as a sudorific, was always given after the blood-letting. When the pains were great, and attended with much tenesmus, the warm bath gave instantaneous relief. This plan being steadily persevered in for a few days, the inflammation of the intestinal canal, which had excited symptomatic fever throughout the system, was found gradually to yield, and to make way for returning health. (Watson.*) Experience has proved that this treatment is very inferior in efficacy and safety to that by Ipecacuanha alone (which see). It has therefore been properly abandoned of late years.

1654. *In Granular Disease of the Kidney, Morbus Brightii*, it is of the first importance to maintain a free cutaneous discharge, and for this purpose Dover's Powder has been found highly serviceable, in doses of gr. v.—viij., thrice daily. It not only acts as a diaphoretic, but allays the pain and irritability. The warm bath every other evening, or oftener, greatly assists its operation. (Christison.†)

1655. *In profuse Perspirations*, particularly in those which attend hectic fever, you can put a stop to them, remarks Dr. Graves,‡ by giving a few grains of Dover's Powder at bedtime. It is hard to account for this, he observes, but it is a fact.

1656. *In the Diarrhœa of Fever*, when the symptoms of inordinate vascular determination are present, the evacuations being watery, offensive, or otherwise morbid, Dr. Copland § advises a combination of Dover's Powder and Hydrargyrum cum Cretâ, in small doses to be given every four or five hours.

1657. *In Diabetes*, Dover's Powder is extremely valuable. It is particularly recommended by Dr. Prout,‖ who advises its combination with full doses of Ferri Peroxidum. (See sect.

* Watson's Lectures, &c., vol. ii. p. 501.
† Lib. of Med., vol. iv. p. 292.
‡ Clin. Lect., vol. i. p. 488.
§ Dict. Pract. Med., vol. i. p. 930.
‖ On Stomach and Renal Diseases, p. 50.

1217.) It should be employed in conjunction with other remedies, which tend to establish a healthy cutaneous action.

1658. *In Calculous Diseases*, Dover's Powder is one of the most generally useful palliatives that can be employed. Dr. Prout * speaks highly of its efficacy.

1659. *In Chronic Rheumatism, and in some Neuralgic Affections*, opiates and sedatives prove eminently serviceable. Both these qualities are found in Dover's Powder, and gr. xij. given at bedtime afford a great amount of comfort and relief.

1660. IPOMÆA CÆRULEA. Pharbitis Cærulea. (Kaladana and Mirchai, *Hind.*) *Nat. Ord.* Convolvulaceæ. *Linn. Syst.* Pentandria Monogynia. *Hab.* East Indies.

Med. Prop. and Action. The seeds are purgative, and are regarded by Dr. O'Shaughnessy as equal, if not superior, to Jalap, in certainty of action. In doses of gr. xxx.—xl. they act as a quick, safe, and pleasant cathartic. In 100 cases in which it was exhibited by Dr. O'Shaughnessy, it proved purgative in 94, occasioned vomiting in 5, and griping in 15. It produced, on an average, five stools within 2½ hours; the operation commenced in an hour, and was never delayed beyond four hours. The alcoholic extract keeps good for several months, acts with certainty and speed, and the taste is scarcely perceptible. Many Indian medical officers have testified to its efficacy. It may be given in the form of Tincture (Seeds oz. viij.—Proof Spirit Oij.) in doses of fl. drm. j.—fl. drs. ij., or in Alcoholic Extract, in doses of gr. v.—x.

Therapeutic Uses. The same as those of Jalap, for which it forms an excellent substitute.

1661. IRIDIN, or IRISIN. A pulverulent Extract from *Iris Versicolor* or *Blue Flag*, an American plant, the rhizome of which is officinal in U. S. Pharm. It occurs in the form of a dark brown powder.

Med. Prop. and Action. Mild aperient cholagogue and diuretic. According to trials made with it by the Editor of the *Lancet*, it produces effects very similar to those occasioned by Blue Pill, Rhubarb, and Aloes. It is said seldom to fail in producing a mild catharsis, with bilious evacuations, and seems to possess the advantages of (1) not requiring the addition of a mercurial; (2), of not irritating the rectum, as Aloes is apt to do; and (3), of not having any astringency, and therefore not producing subsequent costiveness, like Rhubarb, when given alone.

Dose, gr. ij.—gr. v. in the form of pill.

1662. *Therapeutic Uses. In a sluggish state of the Bowels arising from torpidity of the Liver, or when the stools are pale, particularly as we find them in the intervals of overt attacks in Gouty persons*, Iridin has been found one of the best aperients, much gentler than Podophylline, and more reliable when a slight cholagogue action is required to be maintained for a lengthened period.† The Eclectics in America ascribe anthelmintic pro-

* Op. cit.

† Lancet, Aug. 30, 1862.

perties to it, and prescribe it in *Syphilis*, *Chronic Hepatitis*, *Rheumatism*, *Scrofula*, &c. (Beach.*)

1663. JALAPA. Jalap. The dried tubers of Exogonium (Ipomœa) Purga. *Nat. Ord.* Convolvulaceæ. *Linn. Syst.* Pentandria Monogynia. *Source*, Mexico.

Med. Prop. and Action. Cathartic. It is a safe and efficacious purgative, operating with rapidity and certainty, causing little irritation, producing copious watery stools, and leaving but little subsequent constipation. Its activity depends upon the Resin, which is an efficient purge, and forms an eligible mode for internal exhibition. In some persons Jalap causes vomiting, nausea, &c.; and when the medicine passes into the intestines, griping is often experienced. Its efficacy as a hydragogue is greatly increased by the addition of the Acid Tartrate of Potash. The Pulv. Jalapæ Co. is an excellent hydragogue purgative. Camphor is said to lessen the griping, while it augments its purgative operation.

Offic. Prep. 1. Extractum Jalapæ (a mixed spirit and aqueous extract. Prepared by maceration, expression, and evaporation). Dose, gr. vj.—gr. xx.

2. Pulvis Jalapæ Compositus (Powdered Jalap oz. v.; Acid Tartrate of Potash oz. ix.; Powdered Ginger oz. j.). Dose, gr. xxx.—gr. lx.

3. Pulvis Scammonii Compositus. (See art. SCAMMONIUM.)

4. Resina Jalapæ (a Resin obtained from Jalap by means of Rectified Spirit). Dose, gr. ij.—gr. vj.

5. Tinctura Jalapæ (Coarsely Powdered Jalap oz. iiss.; Proof Spirit Oj. Prepared by maceration and percolation). Dose, fl. drm. ss.—fl. drs. ij.

Dose of powdered Jalap: for an adult, gr. v.—xxv.; for an infant, gr. ij.—v.

It is contra-indicated, 1, in inflammatory states of the digestive tube; 2, in irritable states of the uterus and its appendages; 3, during pregnancy; 4, during the menstrual period.

1664. *Therapeutic Uses. In Dropsical Affections*, there is no hydragogue cathartic more generally useful than Pulv. Jalapæ Co. in gr. lx. doses, frequently repeated. Dr. Chapman† advises its combination thus:—℞ Pulv. Jalapæ Co. ℈j.—℥ss., Potas. Bitart. gr. v.—x.—xv., Ol. Carui gutt. ij., Aq. f℥iss., M. To be repeated so as to keep up an unremitting discharge from the bowels.

1665. *In Hæmaturia*, the compound powder (*ut supra*) is spoken of by Dr. Todd‡ as the most preferable purgative.

1666. *In Dysentery*, the Pulv. Jalapæ Co. was extensively employed by Mr. Twining.§ Next to Castor Oil, it is the best purgative that can be employed in these cases.

1667. *In Constipation*, depending upon atony of the intestines, Jalap, in combination with a carminative or Calomel, may be given with advantage. In *the constipation of gouty subjects*, on the eve of an attack, Dr. Burne‖ advises the following formula:—℞ Pulv. Jalapæ ℥ss., Vin. Colchici, T. Hyoscyam., Spt. Lavand. Co. āā f℥ss., Aq. Dest. f℥j., M. ft. haust.

1668. *Against Worms, particularly Lumbrici*, Jalap, in com-

* Reformed Practice of Med., p. 882.
† Diseases of the Abdominal Viscera.
‡ Lectures, Med. Gaz., July 19, 1849.
§ Diseases of Bengal, vol. i. p. 69.
‖ On Habitual Constipation, p. 212.

bination with Calomel, is a safe and efficient vermifuge. It is particularly adapted for children.

1669. *In Diseases of the Brain*, Jalap, from its derivative operation, is often administered with advantage. It is best given combined with other purgatives or Calomel.

1670. JUGLANS REGIA. Walnut Tree. *Nat. Ord.* Juglandeæ. *Hab.* Persia, but cultivated in various parts of Europe.

Med. Prop. and Action. The bark of the root is stated to be rubefacient, and the inner bark of the stem emetic. The green rind of the fruit was formerly regarded as anti-syphilitic and anthelmintic, but is now rarely employed. The leaves have been extolled as alterative and deobstruent.

1671. *Therapeutic Uses. In Syphilis*, the green rind of the fruit was greatly extolled by Petrus, Borellus, Ramazzini, Girtanner, and others. Mr. Pearson* states that, in constitutional Syphilis, he has seldom employed it without manifest advantage; but it has now quite fallen into disuse.

1672. *In Scrofula*, the leaves have been strongly recommended by Dr. Negrier, of Angers. He has published three memoirs on the subject: the first in 1841,† the second in 1844,‡ and the third in 1850.§ In the last, he adduces evidence in its favour from Drs. Brogiolli, Nasse, and Kreutzwald. From extensive observations, he draws the following conclusions:—1, Scrofulous affections admit of a radical cure by the preparations of Walnut leaves; 2, the action of this medicine is so constant that we may count upon the successful treatment of a great number of patients by its use; 3, the action of Walnut leaves is slow, innocuous, and durable; 4, *Scrofulous diseases of the skin*, and of the *lymphatic glands*, are cured more speedily and surely by Walnut leaves than by any other medicine; so are also *ophthalmic affections of a strumous nature*. The proportion he uses is a handful of leaves to Oj. of boiling water, of which fʒiv. are taken twice daily. He also recommends an extract prepared by evaporation. A strong decoction he uses as a wash for *scrofulous ulcers*. Maurther, of Vienna, regards it as a remedy of unquestionable efficacy; but Dr. Ranking,‖ of Norwich, states that his experience of the remedy is not sufficiently encouraging to induce him to substitute it for Cod Liver Oil or Iodine.

1673. JUNIPERUS COMMUNIS. Common Juniper. *Nat. Ord.* Pinaceæ. *Linn. Syst.* Diœcia Monadelphia. *Hab.* Northern Europe.

Med. Prop. and Action. The tops and berries are stimulant diuretics.

* Obs. on various Arts. of Mat. Med.
† Bull. Gén. de Thérap., May 1841.
‡ Archiv. Gén. de Méd., Feb. 1844.
§ Ibid., April 1850.
‖ Abs. of Med. Sciences, vol. xi. p. 210.

Active principle, a volatile oil, which is one of the most powerful diuretics in the Materia Medica. If long continued, Juniper communicates a violet odour to the urine, and produces great irritation of the urinary organs, strangury, bloody urine, &c. It was formerly deemed emmenagogue. It is extensively used in flavouring Hollands.

Offic. Prep. 1. Oleum Juniperi (the Oil distilled in England from the unripe fruit). Dose, ℥ij.—℥viij.

2. Spiritus Juniperi (English Oil of Juniper fl. oz. j.; Rectified Spirit fl. oz. ix.). Dose, ℥xx.—fl. drm. iss. This Spirit contains about ninety-five times as much Oil of Juniper as the Spiritus Juniperi Compositus of the Lond. Pharm. The latter contains a small quantity of Oil of Caraway and Oil of Fennel.

Dose of the tops and berries of Juniper, gr. lx.—gr. cxx. They may be given in infusion (oz. j. ad Aq. Ferv. Oj.). Dose, fl. oz. iij.—fl. oz. iv. thrice daily.

It is contra-indicated—1, in all inflammatory states of the system; 2, in irritated states of the kidneys and urinary organs; and 3, in congestion and active disease of the pelvic viscera.

1674. *Therapeutic Uses. In Ascites, Anasarca, and Dropsical Affections* generally, it is favourably spoken of by Van Swieten. It is chiefly used in leucophlegmatic subjects, when the disease is unaccompanied by inflammation, or much irritation of the urinary organs. The Spirit or Oil are the best form in these cases. Percival advises its combination with Camphor.

1675. *In Asthenic Fluxes, particularly in Leucorrhœa and Gleet*, Juniper appears to exercise a beneficial influence.

1676. *In Flatulence, Flatulent Colic, and Spasmodic Affections of the Bowels*, the Oil or Spirit of Juniper is useful as a carminative.

1677. *In Scabies*, Rosenstein states that a strong decoction of Juniper is a speedy and effectual cure.

JUNIPERUS OXYCEDRUS. See CADINI OLEUM.

1678. JUNIPERUS SABINA. Common Savin. *Nat. Ord.* Pinaceæ. *Linn. Syst.* Dicœcia Monadelphia. *Hab.* Southern Europe, the Levant, &c.

Med. Prop. and Action. The fresh and dried tops are irritant and emmenagogue. They may be given in infusion, but the essential oil, upon which the activity of the plant depends, is the most certain and efficacious form for internal use. Savin appears to operate powerfully on the uterus, and has been frequently employed criminally for procuring abortion. When thus taken in large doses, it has caused inflammation and death. Great caution is necessary in its exhibition. The bruised leaves, in the form of ointment, are much employed in keeping open blistered surfaces, setons, &c. For these purposes, it should be freshly prepared, as it soon spoils in hot climates. It has been considered vermifuge.

Offic. Prep. 1. Oleum Sabinæ (the oil distilled in England from the fresh tops). Dose, ℥j.—vj.

2. Tinctura Sabinæ (Savin dried and bruised oz. iiss.; Proof Spirit Oj. Prepared by maceration and percolation). Dose, ℥xx.—fl. drm. j.

3. Unguentum Sabinæ (Fresh Savin, bruised oz. vij.; White Wax, oz. iij.; Prepared Lard oz. xvj.).

Dose of the dried tops, gr. iij.—x. They may be given in infusion (gr. lx. ad Aq. Ferv. Oss.). Dose, fl. oz. j.—fl. oz. ij.

Contra-indications—1, pregnancy; 2, local or general plethora; 3, inflammatory and febrile states.

1679. *Therapeutic Uses. In Amenorrhœa*, the influence of Savin has long been known. Dr. Home,* of Edinburgh, who employed it successfully in four cases, observes that it is chiefly useful in those cases which are unattended by fever, and in which the circulation is languid; but that it is inadmissible in plethoric cases. He advises depletion and antiphlogistic regimen previous to its use. He employed the powdered leaves, in doses of ℈j.—ʒj. twice daily. It may be given in infusion, or the Oil, gutt. ij.—vj., may be exhibited on sugar. Dr. Pereira† confirms the observations of Dr. Home, and states that, in his experience, Savin is the most certain and powerful emmenagogue in the whole Materia Medica; and adds, that he has never seen any ill effects from its use. He employs the Oil.

1680. *In Menorrhagia, Leucorrhœa, and Uterine Hæmorrhage*, Savin was first employed by Wedekind,‡ in 1799. Gunther, in 1826, also employed it successfully; and, in 1844, M. Aran,§ after numerous experiments, came to the conclusion that Savin is one of the most powerful and valuable remedies we possess, not only against sanguineous discharges, Leucorrhœa, &c., which exist, independent of pregnancy, and are characterised by the names of *Atony, Asthenia, Deficient Contractility, &c., but also against the hæmorrhages which indicate approaching abortion*, in women of lax fibre. In these cases, he employed the dried powder of the leaves, in doses of gr. xv.—xx., thrice daily.

1681. *In habitual Abortion, depending upon diminished vitality of the Uterine System*, Dr. Metsch‖ speaks highly of the value of Savin. He advises an infusion (ʒij.—ʒiv. ad Aq. Ferv. f℥vj.), of which the dose is a table-spoonful, twice daily, taken during the intervals of the menstrual periods. Caution in its use is necessary.

1682. *In Rigidity of the Joints from Extravasation, in Marasmus of the Muscles, and in Chronic Rheumatism*, Savin is highly spoken of by Dr. Chapman¶ (U. S.). He states that he has seen great benefit from its use, when it has been persevered in until warmth and itching of the parts occur.

1683. *To Warts and Venereal Vegetations*, powdered Savin was recommended by Cullen. M. Vidal de Cossis** advises a combination of one part of Savin and two of finely-powdered Alum; the parts to be well sprinkled over with this daily.

* Clinical Experiments, p. 387.
† Mat. Med., vol. ii. pt. i. p. 332.
‡ Hufeland's Journal, 1799.
§ Medico-Chir. Rev., July 1844.
‖ Brit. and For. Med. Rev., April 1850.
¶ Elements of Therapeutics, &c.
** Ann. de Thérap., 1846.

1684. *To Tinea Capitis, Scabies, and ill-conditioned Sores*, the infusion (*ut supra*) has occasionally been used as a stimulating wash, but it is inferior to many others.

KAMELA. See ROTTLERA TINCTORIA.

1685. KEROSOLENE or KEROFORM. An organic radical, or, according to some chemists, an Ether or analogous Hydrocarbon, obtained in the manufacture of Kerosene Oil by the destructive distillation of Coal.

Med. Prop. and Action. Its anæsthetic properties were first accidentally discovered in 1861 at Boston (U. S.), and great hopes were entertained at the time that another valuable agent, safer and pleasanter to inhale than Chloroform, had been added to our list of anæsthetics. The trials of it by Dr. H. J. Bigelow* and Dr. E. Cutter,† of Massachusetts, were most satisfactory; but some doubts as to its safety and general applicability are thrown by the experiments of Dr. Dunglison,‡ who, in three cases in which he employed it, found that it induced intermittent pulse and partial asphyxia. Though these unfavourable symptoms may have been a coincidence, yet they suggest caution in its use. "Its action," observes Dr. Bigelow, "is probably more potent than that of Ether, requires a freer admixture of air, and may produce upon the system some impression or influence other than that of the mere intoxication attendant on the use of Ether. In awaiting further evidence, it may be considered established that Kerosolene is an anæsthetic of undoubted efficacy, and that it possesses certain remarkable properties peculiar to itself."

1686. KINO. Kino. The inspissated juice obtained from incisions in the trunk of Pterocarpus marsupium. *Nat. Ord.* Leguminosæ. *Linn. Syst.* Diadelphia Decandria. *Hab.* India; imported from Malabar. Other varieties of Kino are yielded by Pterocarpus Erinaceus, a native of Senegal (African Kino); by P. Wallichii (Padouk), a tree indigenous in the Tenasserim Provinces; and, doubtless, by other species of Pterocarpus. The gums of Butea Frondosa, of India, &c., and of Eucalyptus Resinifera, of New Holland, have often been confounded with the true Kino; not only resembling it in appearance, but being closely allied to it in their medicinal properties.

Med. Prop. and Action. Powerful astringent, containing the same astringent principles as Catechu, viz., a species of Tannin (Mimotannic Acid) and Catechin. It is best given in Tincture, or in the form of Pulv. Kino cum Opio. Alkalies are said to impair its astringent qualities. Combined with Cinchona, it is said to increase the anti-periodic power of the latter. Externally, it is occasionally applied as an astringent to copiously discharging ulcers, and to relaxed mucous surfaces.

Offic. Prep. 1. Pulvis Catechu Compositus. (See Catechu.)
2. Pulvis Kino cum Opio. Pulvis Kino Compositus (Pharm. Lond.) (Powdered Kino oz. iij. ¾; Powdered Opium oz. ¼; Powdered Cinnamon oz. j.). Dose, gr. v.—gr. xxx. 20 grs. contain 1 gr. of Opium.

* Med. Times, Aug. 17, 1861, p. 180.
† Amer. Med. Times, Aug. 1861, p. 86.
‡ Loc. cit.

3. Tinctura Kino (Powdered Kino oz. ij. ; Rectified Spirit Oj. Prepared by maceration). Dose, fl. drm. ss.—fl. drs. ij.

Dose of powdered Kino, gr. x.—gr. xxx., or more.

It is contra-indicated in inflammatory states of the intestinal canal.

Incompatibles. Alkalies; the strong Acids; Sulphate of Iron; Nitrate of Silver; Acetate of Lead; Tartar Emetic; and Corrosive Sublimate.

1687. *Therapeutic Uses.* The form of *Diarrhœa* which appears to be the most benefited by Kino is that connected with follicular derangements. Dr. Pemberton,* who thought highly of its virtues as an astringent, asserts that it possesses one peculiar property; namely, never acting as an astringent, unless Diarrhœa is present. He employed it in doses of Ɔj., combined with a small portion of Opium. M. Bally† states that he invariably found that, in doses of gr. xij.—xiv., it effectually checked Diarrhœa, even when this was attended with febrile symptoms.

1688. *In incipient stages of Follicular Dyspepsia*, Dr. Pemberton‡ placed his chief reliance upon Kino, in combination with Opium (Kino gr. x., Opium gr. ¼—½, M. 4tis horis sumend.). He preferred Kino, as it did not appear to constipate the bowels, unless Diarrhœa was present.

1689. *In Pyrosis*, Kino is often very serviceable. Dr. Watson§ states that the Pulv. Kino Co. (gr. x., ter in die) is an admirable remedy in this affection. He advises Castor Oil, or some mild aperient at the same time.

1690. *In the profuse perspirations of Phthisis*, Dr. Watson‖ advises the exhibition of Pulv. Kino Co. "It certainly has," he observes, "much power over the perspirations, and it has this further advantage, that (containing Opium) it tends to control the Diarrhœa and to check the cough."

1691. *In Hæmorrhagic Diseases of a passive character*, Kino may be given with benefit. From the large portion of Tannin contained in it, it may be substituted for the latter in those forms of Hæmorrhage enumerated under that head. (See TANNIN.)

1692. *In Relaxation of the Uvula*, Kino is an excellent application, either dissolved and used as a gargle, or allowed to dissolve slowly in the mouth.

1693. *To ill-conditioned Ulcers*, with a relaxed surface and a thin ichorous discharge, the Tincture of Kino, locally applied, acts as an astringent and stimulant.

KOUSSO. See CUSSO.

KRAMERIA TRIANDRA. See RHATANY.

* Dis. of the Abdominal Viscera, p. 149.

† Med. Gaz., vol. v. p. 700; and Gaz. de Santé, &c., 1829.

‡ Op. cit.

§ Lectures, vol. ii. p. 447.

‖ Ibid., vol. ii. p. 215.

1694. LACMUS. Litmus. A peculiar colouring matter obtained from Roccella Tinctoria and other colorific Lichens. It is officinal solely as a chemical test. Acids turn blue Litmus paper red, but the former colour is restored by solutions of the alkalies. It is an easy and important test for ascertaining the acidity, or otherwise, of the urine and secretions.

Offic. Prep. 1. Tincture of Litmus (Powdered Litmus oz. j.; Proof Spirit fl. oz. x. Prepared by maceration).

2. Blue Litmus Paper (made by steeping unsized paper in the Tincture, and drying by exposure to air).

3. Red Litmus Paper (made as the above, the Tincture having been previously reddened by the addition of a very minute quantity of Sulphuric Acid).

1695. LACTIC ACID. Acidum Lacticum. Acid of Milk may be obtained, by the process termed "viscous fermentation," from Milk, the juice of the Beet, Turnip, Carrot, &c.; indeed, it is formed whenever sugar in solution of whatever kind is placed in contact with an alkaline or earthy carbonate in presence of a ferment, as, for example, the casein of milk (Pelouse). It occurs in the form of a colourless syrupy fluid of a very sour taste. Sp. Gr. 1·215. The formula of the Hydrated Acid is $C_6H_5O_5 + HO$; or, considered as a Bibasic Acid, $C_{12}H_{10}O_{10} + 2\,HO$. The Lactates of Magnesia and Soda have been proposed as therapeutic agents by M. Petrequin.*

Med. Prop. and Action. Taken internally, Lactic Acid produces no sensible physiological effects. It is supposed to act as a digestive; and as Lactic Acid exists naturally in healthy gastric juice, it is not improbable that in cases where this acid is morbidly deficient, it may be advantageously supplied by means of this artificial product (see Dyspepsia *infra*). Considerable interest attaches to this acid from the experiments of Dr. Richardson,† who, acting on the suggestion of Dr. Prout, that an accumulation of this acid in the system was the cause of acute Rheumatism, instituted a series of experiments, by injecting a solution into the peritoneal cavity of dogs, from which it appears that though it is not proved that Lactic Acid is the true cause of rheumatic endocarditis, yet it is certain that the acid introduced into the circulation is sufficient to produce such an endocardial condition. The subsequent observations of Möller and Rauch‡ tend to confirm the views of Dr. Richardson; whilst those of Dr. Reyher§ throw some doubt on the correctness of the conclusions of previous observers. It is to be hoped that further investigations will be made on this interesting subject.

The Dose of Lactic Acid is fl. drm. j.—fl. drs. iij. daily, in the form of lemonade, sweetened with sugar, or made into lozenges.

1696. *Therapeutic Uses.* *In Dyspepsia*, it was first introduced by Magendie, who considered that he derived great advantage from its use. Its value has also been attested by Dr. C. Handfield Jones,‖ who employed it chiefly in cases of

* Ranking's Abstract, xxxvi. p. 134, 1862.

† Med. Times, Nov. 28, 1857.

‡ Virchow's Archiv., Bd. xx. Heft. i. and ii. p. 211.

§ Brit. and For. Med.-Chir. Rev., Jan. 1862, p. 253.

‖ Assoc. Med. Journ., July 14, 1854.

irritative Dyspepsia when the digestion was painful and imperfect, and had been so for some time. He does not advise its use at the commencement of the treatment of a severe case, but only after the irritation is somewhat reduced. The dose is ♏xv.—♏xx. in f℥ss. of water taken at meal times; it seems then to mingle with the food, and to supply one of the constituents of healthy gastric juice, which is probably imperfectly produced. Its use need not be confined to cases of Dyspepsia, but may be extended to all cases where it is desirable to improve the tone and power of the stomach. Dr. O'Connor,* who reports favourably of it in dyspeptic cases, regards it as superior to Pepsin, an opinion opposed by Mr. Squire.† To obtain good effects, it is essential that the acid should be pure and of good quality, which is not generally the case with that sold in the shops.

1697. *In Phosphatic Deposits, and also in those of the Oxalate of Lime in the Urine*, Lactic Acid, from its solvent power over these two substances, has been resorted to, but apparently with no very marked results. Dr. Challier‡ found that it acted as a ready solvent of Uric Acid: hence he was led to suggest its use in *Lithiasis*. From its power in these cases, it has been recommended in the treatment of *Gout*,§ but evidence of its practical utility is not adduced.

1698. Lactuca Sativa. The Garden Lettuce. *Nat. Ord.* Compositæ. *Linn. Syst.* Syngenesia Æqualis. Cultivated in most parts of the world.

Med. Prop. and Action. The inspissated juice, *Lactucarium*, or *Lettuce Opium*, is sedative and diaphoretic. It has been advised as a substitute for Opium, by Duncan,‖ Coxe, and others. Dr. O'Shaughnessy¶ states, that he found it distinctly sedative in doses of gr. vj., and that it does not in any way affect the bowels, either as an astringent or aperient. He could not detect in it the least trace of Morphia, or of any of the narcotic principles of Opium. Of Lactucarium, prepared from the plant grown in India, the dose is stated by Dr. Graham to be from gr. iv. to xij. It may prove useful where Opium is contra-indicated, but it is rarely employed. Dr. Garrod is disposed to question its narcotic powers. He says that he has given thirty grains and more of good Lactucarium without noticing any decided effects from its administration. Lactucarium contains a crystalline substance, Lactucerine, which is soluble in alcohol and ether, but not in water; Lactucic Acid, and Lactucine, a crystalline substance, soluble in water, resembling Mannite (Garrod).**

Dose of Lactucarium, gr. v.—gr. x. or gr. xx.

1699. *Therapeutic Uses. In Phthisis*, it was first recommended by Dr. Duncan,†† as a means of allaying the cough. He speaks favourably of its influence, but it is rarely employed.

* Med. Times, April 25, 1857.
† Ibid., May 2, 1857.
‡ Dublin Med. Press, Sept. 13, 1843.
§ Brit. and For. Med. Rev., ix. p. 239.
‖ Obs. on Pulmonary Consumption, p. 162.
¶ Bengal Dispensatory, p. 407.
** Essentials of Mat. Med. and Therap., p. 239.
†† Obs. on Consumption, p. 162.

1700. *In Insanity*, it was employed by Mr. Twining* in Calcutta. In some instances its effects were doubtful, in others it was given with decided benefit, in doses of gr. xij. at bedtime, repeated daily, until amendment was visible.

1701. *In Spermatorrhœa*, it has been occasionally serviceable. In one obstinate case it effected a cure in fourteen days. The dose employed was gr. ij., gradually increased to gr. viij., daily.†

1702. *In Rheumatism*, it is sometimes useful in allaying pain and inducing sleep. Dr. Duncan also employed it in *Gout*.

1703. LACTUCA VIROSA. The Strong-Scented Lettuce: agrees with L. Sativa in botanical characters and medical properties. The inspissated juice is sedative and narcotic, and as such has been proposed as a substitute for Opium.

Dose of the inspissated juice (Lactucarium), gr. v.—gr. xx.

1704. *Therapeutic Uses. In Dropsical Affections*, the inspissated juice was first employed by Dr. Collin,‡ of Vienna. He states, that of twenty-four cases treated with it, all but one recovered under its use. He found it to agree well with the stomach, to quench thirst, to be gently laxative, powerfully diuretic, and somewhat diaphoretic. He employed it in doses of gr. xxx. daily, gradually increased to ʒiij. Subsequent experience has failed to realize any benefit from it.

1705. *In Angina Pectoris*, Schlesinger§ derived advantage from the extract of Lactuca Virosa, in doses of two grains, combined with half a grain of Digitalis, repeated every two hours.

1706. *In Hooping-Cough*, the extract appears occasionally to exercise a beneficial influence. It proved successful in the hands of Dr. Gumprecht‖ and others.

1707. LAMINARIA DIGITATA. Sea Girdles, or Sea Tangles. A species of Sea-weed. *Hab.* The coasts of Europe.

Med. Prop. and Action. From the property the stem possesses of becoming greatly reduced in bulk when dried, and again expanding when exposed to moisture, it has been used to form tents for dilating the os uteri. Professor Wilson,¶ of Glasgow, recommends the use of tangle tents in preference to those of sponge, on the ground that they are much more easily introduced.

1708. LARIX EUROPÆA. The Common Larch. *Nat. Ord.* Pinaceæ. *Linn. Syst.* Monœcia Monadelphia. *Hab.* Europe.

Med. Prop. and Action. Stimulant, astringent, and diuretic. A Tincture prepared from the inner bark of the Larch has been used by Dr. Headlam Greenhow** to check profuse passive expectoration in cases of *Chronic Bron-*

* Trans. of Med. and Phys. Soc. of Calcutta, App.

† Gaz. des Hôpitaux, Feb. 1838.

‡ See Lond. Med. Journ., vol. i. p. 263.

§ Hufeland's Journ., vol. i. p. 57.

‖ Medico-Chir. Trans., vol. vi.

¶ Med. Times and Gaz., Nov. 28, 1863.

** Ibid., Feb. 20, 1864.

chitis. He prefers it to other medicines of the balsamic class on account of its more agreeable taste. Venice Turpentine is also the product of the Larch. (See TEREBINTHINA.)

1709. LAURO-CERASUS. The fresh leaves of Prunus (Cerasus) Lauro-cerasus, the Cherry Laurel. *Nat. Ord.* Rosaceæ. *Linn. Syst.* Icosandria Monogynia. Cultivated in England.

Med. Prop. and Action. The recent leaves are sedative in doses of gr. iv.—viij., but they are rarely given internally, as they yield a variable quantity of Prussic Acid, produced by the decomposition of Amygdaline which they contain, and are consequently very uncertain in their operation. Externally, the bruised leaves are made with bread crumbs into anodyne poultices. The water obtained from the leaves by distillation (Aq. Lauro-cerasi) is powerfully sedative. Its uncertain strength renders it a dangerous remedy; it possesses no properties which cannot be more safely and certainly obtained from Prussic Acid. It is rarely used in British practice; but is held in high esteem by the Germans and French. In large doses it is a violent poison.

Offic. Prep. Aqua Lauro-cerasi (Fresh Leaves of Common Laurel lb. j.; Water Oiiss. Distil Oj.). Dose, ℥x.—fl. drm. ss. or more.

1710. *Therapeutic Uses. In aggravated cases of Cough*, attended with little expectoration and much dryness of the skin, Sir George Lefevre * strongly recommends the following mixture:—℞ Aq. Lauro-ceras., T. Digitalis, Liq. Antim. Tart. āā fʒj., M. Dose, gutt. xxx.—xl., four or five times a day, in any simple vehicle.

1711. *Spasmodic Affections of the Chest and Stomach* are, according to the experience of Sir G. Lefevre,† greatly benefited by this medicine. He states that he has seen many cases in which it was used with marked advantage. *In Hooping-Cough*, the inhalation of the vapour is favourably spoken of by Dr. Pavesi‡ and others.

1712. *In the early stage of Milk Abscess*, when there is an abundant secretion of milk, and the breasts are distended and very painful, Dr. Caffe § states that immediate relief is afforded by the following application:—℞ Aq. Lauro-ceras. fʒj., Spt. Æther. Sulph. fʒj., Ext. Opii gr. iij., M. A piece of linen dipped in this is to be applied constantly to the breast.

1713. *To Cancerous and painful Ulcerations and Tumours*, the leaves, in the form of poultice (*ut supra*) or infusion (oz. iv. ad Aq. Ferv. Oij.), have been used as an anodyne. It is not altogether free from danger.

1714. LAURUS CASSIA, *Linn.* Cinnamomum Cassia, *Blum.* The Cinnamon Cassia. *Nat. Ord.* Lauraceæ. *Hab.* China, Java, India.

Med. Prop. and Action. Cassia Bark (Cassia Lignea) is an aromatic stimu-

* Thermal Comfort, 8vo, 1844.
† Ibid.
‡ Ranking's Half-Yearly Abstract, vol. xiv. p. 205.
§ Journ. Hebdom., vol. ii. p. 23.

lant and carminative. The oil obtained from it by distillation has similar properties. Cassia buds have also like properties. Cassia Lignea is more astringent than Cinnamon, but forms a good substitute for it. It may be distinguished from the latter by adding Iodine to an aqueous infusion; with Cassia it gives a blue colour; with Cinnamon no change is observed.

Dose of Cassia Bark, gr. x.—gr. xxx.; of the Oil, gutt. j.—iv.

Therapeutic Uses. Similar to those of Cinnamomum.

1715. LAURUS NOBILIS. The Laurel, or Sweet Bay. *Nat. Ord.* Lauraceæ. *Linn. Syst.* Enneandria Monogynia. *Hab.* Southern Europe. Cultivated in England.

Med. Prop. and Action. The leaves and berries are stimulant and aromatic. They contain a volatile oil, which has similar properties. They are rarely used in medicine, excepting externally in the form of embrocation. They do not yield Prussic Acid.

1716. *Therapeutic Uses.* These are very unimportant. They were formerly used in *Amenorrhœa, in Colic, Flatulence, Coughs, Hysteria, &c.*, but their internal use is now abandoned.

1717. *In Sprains, Bruises, and Paralysis*, the expressed oil is occasionally used as a stimulant liniment, but it does not appear to possess any advantage over the ordinary embrocations.

1718. *In Impetigo*, an infusion of Bay berries is stated by Dr. A. T. Thompson to be productive of beneficial results.

LAURUS SASSAFRAS. See SASSAFRAS.

1719. LAVANDULA VERA. L. Spica. L. Angustifolia. Common Lavender. *Nat. Ord.* Labiatæ. *Linn. Syst.* Diandria Monogynia. *Hab.* Southern Europe, England, &c.

Med. Prop. and Action. The flowers are stimulant and carminative; powdered, they are occasionally used as an errhine. The volatile oil obtained by distillation is stimulant. It is best given in the form of Compound Tincture. The distilled water is an agreeable perfume.

Offic. Prep. 1. Oleum Lavandulæ (the Oil distilled in England from the flowers). Dose, ℥ij.—℥x.

2. Spiritus Lavandulæ (English Oil of Lavender fl. oz. j.; Rectified Spirit fl. oz. ix.). Dose, ℥x.—fl. drm. j.

3. Tinctura Lavandulæ Composita (English Oil of Lavender fl. drs. iss.; English Oil of Rosemary ℥x.; Cinnamon bruised gr. cl.; Nutmeg bruised gr. cl.; Red Sandal Wood gr. ccc.; Rectified Spirit Oij. Prepared by maceration). Dose, ℥xxx.—fl. drs. iss.

1720. *Therapeutic Uses. In Nervous and Hysterical cases, in Flatulence, and in incipient Syncope*, the Compound Tincture (*ut supra*) is an agreeable and valuable stimulant, carminative, and nervine. It may be given in doses of fl. drm. ss.—fl. drm. j.

1721. LEPTANDRIN. A black, shining powder, prepared from the root of Leptandra Virginica, a plant indigenous in North America. *Nat. Ord.* Scrophulariaceæ. The designation properly belongs to the bitter crystallizable principle con-

tained in the root of this plant, but of the virtues of the latter nothing is at present known.

Med. Prop. and Action. The effect of Leptandrin is gently to excite the liver and promote the secretion of bile without producing the least irritation of the bowels. It does not purge at all, and even its laxative effect is very slight, while on the stomach it acts as a decided tonic; hence it is most valuable in *Diarrhœa* and *Chronic Dysentery*, when the stools are destitute of bile, and the mucous membrane is irritable. Under its use the stools are said soon to assume a natural colour and consistence. *In Torpidity of the Liver*, it is thought to be superior to Blue Pill. *In Intermittents*, if given with Quinine, it is thought to render the action of the latter more certain and effectual. It is apparently a valuable remedy in some forms of *Dyspepsia*. It is also highly commended in *Epidemic Dysentery* and *Infantile Cholera*. It is said to be a valuable adjunct to Podophyllin and Iridin.*

Dose, gr. ½—ij., three or four times daily.

LIMONIS CORTEX, LIMONIS OLEUM, LIMONIS SUCCUS. See CITRUS.

1722. LINUM CATHARTICUM. Purging Flax. *Nat. Ord.* Linaceæ. *Linn. Syst.* Pentandria Pentagynia. *Hab.* Europe, England.

Med. Prop. and Action. Cathartic, in doses of gr. lx.—gr. cxx., in infusion; diuretic in smaller doses, at shorter intervals. Dr. Butler Lane states that he has employed it extensively without any unpleasant effects. He regards it as a safe and valuable remedy.

1723. *Therapeutic Uses. In Catarrhal maladies*, Dr. Lane† states that he found the Purging Flax exceedingly effectual; and also in those *sub-acute rheumatic complaints*, which are often alike troublesome and intractable. *In the cure of affections of the Throat and Air-passages*, he considers the counteracting effects to depend on the peculiar stimulation of the mucous and muscular structures of the alimentary canal, and the sympathetic influence extended to the glandular organs connected therewith. Where the morbid action is of a rheumatic character, the curative agency is manifested more slowly, and in apparent dependence on the diuretic action. *In Chronic Rheumatism*, especially when affecting the muscular structure, such as *Lumbago*, the use of Linum Catharticum is remarkably beneficial. In cases of *Ascites connected with hepatic disease*, he also found it very efficient.

1724. LINUM USITATISSIMUM. Common Flax. *Nat. Ord.* Linaceæ. *Linn. Syst.* Pentandria Pentagynia. *Hab.* Europe, India, &c.

Med. Prop. and Action. The seeds (Lini Semen, Linseed) are demulcent and emollient, and may conveniently be given in infusion, with sugar, lemon, &c., to taste, in doses of fl. oz. ij., several times daily. If drunk largely, it assists the action of other diuretics. The oil expressed from the seeds (Lini Oleum, Linseed Oil) is emollient and laxative in doses of fl. oz. ss.—fl. oz. j.

* See Lancet, Aug. 30, 1862, p. 239. † Med. Times, July 13, 1850.

It is rarely given internally, excepting in the form of enema. The farina of the seeds, after the oil has been expressed (Lini Farina), commonly known as *Linseed Meal*, is extensively employed in the formation of poultices. For this purpose Mr. Abernethy* directs that the basin should be first scalded with a little hot water, a small quantity of finely powdered Linseed Meal is then put into it, and then a little hot water, taking care to incorporate it thoroughly; then add a little more meal and a little more water, and work it together till no lumps remain, and it becomes of the consistence of a pancake. (See CATAPLASMS.)

Offic. Prep. Of the Meal (Lini Farina): Cataplasma Lini (Linseed Meal oz. iv.; Olive Oil fl. oz. ss.; Boiling Water fl. oz. x. Mix the Linsced Meal with the Oil, then add the Water, constantly stirring).

Of the Seed (Lini Semen): Infusum Lini (Linseed gr. clx.; Fresh Liquorice-root sliced gr. lx.; Boiling Distilled Water fl. oz. x. Infuse for four hours, and strain). Dose, *ad lib.*

1725. *Therapeutic Uses. In Catarrh, Diarrhœa, Dysentery, Visceral Inflammations, Calculus, Ardor Urinæ, Gonorrhœa, and affections of the Genito-Urinary Organs*, the infusion (*ut supra*) is an excellent demulcent, and its value is greatly enhanced by being generally procurable.

1726. *In Puerperal Fever*, at an advanced stage, when the offending matter from the bowels stimulates to frequent and involuntary stools, Dr. Denman† advises enemas of water in which the bruised seeds have been boiled, and which consequently contains a portion of the oil.

1727. *To Abscesses*, to hasten the process of suppuration, Linseed-meal poultices (*ut supra*) are very valuable applications.

1728. *In Abdominal and Thoracic Inflammations*, Linseed-meal poultices made light, soft, and sufficiently large to cover the whole abdomen, back, or side of the chest, are productive of great relief. They are strongly recommended by Sir F. Smith.‡

1729. *In Ileus*, Dr. Maxwell § found large injections of warm Linseed Oil (Oij.—Oiv.), steadily and slowly thrown up (regurgitation being prevented by pressing the guard of the pipe against the anus), remarkably successful after feculent vomiting had come on, and the usual means had failed. He recommends, in such cases, the patient to be placed on the right side, with the pelvis elevated above the rest of the body, the premature return of the injection being prevented by firmly pressing a ball of linen against the anus. He directs this glyster to be repeated every three or four hours, until relief is obtained; and, when much exhaustion is present, with the addition of Opium. (Copland.)

1730. LIQUIDAMBAR. Copal Balsam. The exuded balsam of Liquidambar Styraciflua, a native of North America; of L. Altingia, of Java; and of L. Orientale, of Cyprus.

* Lectures.
† Midwifery, vol. ii. p. 152.
‡ Dub. Journ., vol. xviii. p. 451.
§ Edin. Med. and Surg. Journ., vol. xxi. p. 72.

Nat. Ord. Liquidambaraceæ. It is also obtained in large quantities from an undetermined tree in the Tenasserim Provinces.

Med. Prop. and Action. Stimulant, expectorant. It has often been confounded with Storax, to which, in medicinal properties, it bears a close resemblance. It exercises a powerful influence on the mucous surfaces generally, especially on that which lines the bronchi and air-passages. (See STYRAX.)

Dose, ℥x.—℥xx. in emulsion.

1731. *Therapeutic Uses. In Chronic Catarrhs, and in some affections of the Genito-Urinary System*, it may prove useful. It is contra-indicated by all inflammatory states.

LITHARGYRUM. Litharge. See preparations of LEAD (Plumbum).

1732. LITHIÆ CARBONAS. Carbonate of Lithia. LO, CO_2. A compound of 1 Eq. Lithia = 7 + 1 Carbonic Acid = 22 = 29, Eq. Wt.

Med. Prop. and Action. Alkaline, diuretic, and lithontriptic. The value of Lithia depends on its affinity for Uric Acid, on its small combining proportion, and on the great solubility of Urate of Lithia. The Carbonate of Lithia renders the urine more alkaline than the corresponding salts of soda and potash (Garrod*).

Dose, gr. iij.—gr. vj. It may be given in aërated water; free dilution aids its diuretic action (Garrod).

1733. *Therapeutic Uses. As a solvent of Uric Acid Calculus*, it was first proposed by Mr. Ure,† in 1843; and the success he met with in dissolving extracted calculi warrants the belief that it is the most efficacious solvent yet known. He found that one grain of Lithia dissolved in f℥j. of Aq. Dest. took up at 98° F. 2·3 grains of Uric Acid; and that a solution of 4 grains in f℥j. of water, at the same temperature, lessened the weight of a calculus composed of Uric Acid with alternate layers of Oxalate of Lime, 5 grains in five hours. "If," Mr. Ure adds, "by means of injections we can reduce a stone at the rate of a grain an hour, as the above experiment would lead us to anticipate, we shall not merely diminish its positive bulk, but further loosen its cohesion, disintegrate it, so to speak, causing it to crumble down and be washed away in the stream of the urine." Its solvent powers are reported highly of by Binswanger and other German authorities. Dr. Garrod‡ has recently called attention to the value of the salts of Lithia in cases of *Uric Acid Diathesis connected with Gravel*, and in cases of *Chronic Gout*. This recommendation is based upon the fact that Lithia possesses great affinity for Uric Acid, and that the Urate of Lithia is the most soluble of all the urates. Hence the value of the Lithia springs of Baden-Baden,

* Essentials of Mat. Med. and Therap., pp. 93, 94.

† Pharmaceut. Journal, vol. iii. p. 71.

‡ Braithwaite's Retrospect, xli. p. 29.

as shown by Dr. Althaus.* Lithium has also been lately discovered in the Bath thermal waters by Prof. Roscoe.

1734. LITHIÆ CITRAS. Citrate of Lithia. 3 LO, $C_{12}H_5O_{11}$. *Prep.* Made by dissolving 50 grs. of Carbonate of Lithia in 1 fl. oz. of Water containing 90 grs. of Citric Acid, by the aid of heat; evaporating the solution, and drying the residue at a temperature of 240°.

Med. Prop. and Action. The same as those of Carbonate of Lithia.

Dose, gr. v.—gr. x.

1735. LOBELIA INFLATA. Indian Tobacco. *Nat. Ord.* Lobeliaceæ. *Linn. Syst.* Pentandria Monogynia. *Hab.* United States.

Med. Prop. and Action. The whole plant is officinal. In doses of gr. j.—v. of the powdered leaves it is sedative, sudorific, and expectorant; of gr. xv.—gr. xx. it acts as an emetic or cathartic; and in larger doses it is an acro-narcotic poison. It is best given in simple or ctherial Tincture. Of the simple Tincture fl. drs. ij. act as an emetic. If a leaf or capsule be held in the mouth for a short time, it brings on giddiness, headache, a trembling agitation over the whole body, sickness, and finally vomiting. These effects are analogous to those which Tobacco produces in those unaccustomed to its use. If swallowed in substance, it excites speedy vomiting, accompanied by distressing and long-continued sickness, and even with dangerous symptoms if the dose be large (Bigelow).† It is extremely unequal in its operation; in some, causing, even when given in small doses, serious constitutional disturbance; whilst in others, large doses are taken with little perceptible effect. As there are no means of determining the cases in which its operation will be thus violent, it is always advisable to commence with small doses, and to increase them as the patient is able to bear the medicine, discontinuing its use, if it cause nausea, or great depression, or intermittent pulse. Its activity appears to depend upon two principles—1, *Lobelin*, a principle much resembling Nicotin; and, 2, a volatile oil, or peculiar acid, *Lobelic Acid.*

Offic. Prep. 1. Tinctura Lobeliæ (Lobelia dried and bruised oz. iiss.; Proof Spirit Oj. Prepared by maceration and percolation). Dose, ɱx.—fl. drm. ss., or more.

2. Tinctura Lobeliæ Ætherea (Lobelia dried and bruised oz. iiss.; Spirit of Æther Oj. Prepared by maceration). Dose, ɱx.—fl. drm. ss., or more.

1736. *Therapeutic Uses. In Spasmodic Asthma*, Lobelia occasionally affords great and immediate relief, but more often fails to produce any beneficial effect. This want of uniformity of action is a great drawback to its value. The Tincture should be given in small (ɱx.—xij.) and increasing doses. Bigelow says that it sometimes produces relief without vomiting, but more frequently after discharging the contents of the stomach. Dr. Andrews‡ employed it with benefit in *Hooping-Cough.*

1737. *In Chronic Bronchitis*, it is favourably spoken of by Dr. C. B. Williams,§ particularly in those aggravations of common Catarrh which Laennec designates "Suffocative." The dose should be small at first, gradually increased, and its action carefully watched.

* Med. Times and Gaz., Nov. 23, 1861.

† Mat. Med., 1818, Boston.

‡ Glasgow Medical Journal, vol. i. p. 178.

§ Cyc. Pract. Med., art. Bronchitis.

1738. *In Chronic Pneumonia*, the Tincture of Lobelia is useful in facilitating expectoration and relieving dyspnœa.

1739. *In Hay Fever*, the Tincture is spoken of as an effectual remedy by Mr. Gordon, of Welton.* Its effects should be carefully watched.

1740. LUPULIN. Lupulina. The yellow pulverulent substance separated from the strobiles of Humulus Lupulus (Hops) by the process of rubbing and sifting.

Med. Prop. and Action. Tonic, sedative, and anaphrodisiac. It produces neither headache, nervousness, constipation, nor any other unpleasant symptoms; in which respects it is superior to Camphor.

Dose, gr. vj.—xij. in powder, with sugar or in pill, or in Tincture (oz. v., Spt. Rect. Oij.), in doses of fl. drm. ss.—fl. drs. ij. By long keeping, it loses much of its efficacy.

1741. *Therapeutic Uses. In Nervous Affections*, when Opium cannot be tolerated, Eberle† found Lupulin peculiarly useful. *In Chronic Hysteria, attended with morbid vigilance*, he found it, in doses of gr. x. every six hours, afford great relief, without causing any unpleasant effects.

1742. *In certain Irritable States of the Generative Organs*, it is a remedy of great value. *In Gonorrhœa* it was first used by Dr. Byrd Page,‡ who found it effectual not only in removing *Chordee*, but in allaying irritation of the inflamed mucous membrane of the urethra. Whenever it is desirable to keep the penis at rest, as in cases of *Chancre, after the operation of Phymosis, during the treatment of Stricture, &c.*, Lupulin, in doses of gr. v. —x., or even gr. xv., may be resorted to with advantage. *In Spermatorrhœa* it is a remedy of great power. Amongst others, Dr. Pescheck§ has recorded high testimony in its favour when given in doses of gr. xv. at bedtime. He sometimes added to it gr. j.—ij. of Pulv. Digitalis. It has also been found very serviceable in mitigating the *Urethral Irritation and Discharges consequent on former excesses*, more so indeed than either Iron or Quinine. A valuable peculiarity in the operation of Lupulin is the beneficial action it exerts on the digestive process, which is so often at fault in these cases. *In Nymphomania*, it seems well worthy of a fair trial. Herzfelder‖ used it with advantage in *Nocturnal Incontinence of Urine.*

1743. *In Scrofula and Scrofulous Affections*, Dr. Zambaco¶ states that he employed Lupulin with excellent effects. *In Intermittent Fevers*** it has been found occasionally effectual in doses of gr. vj.—xij. daily. It is a popular remedy amongst the Neapolitans.

* Med. Gaz., vol. iv.
† Therapeutics, ii. p. 56.
‡ Philadelphia Med. Examiner, May 1849, p. 284.
§ Buchner, Repert. für Pharm., No. i. 1856.
‖ Bull. Gén. de Thérap., lii. p. 187.
¶ Ibid., Aug. 30, 1854.
** Edin. Med. Surg. Journ., No. xlv. p. 244.

LUPULUS. See HUMULUS LUPULUS.

1744. LYCOPODIUM CLAVATUM. Club Moss. *Nat. Ord.* Lycopodiaceæ. *Linn. Syst.* Cryptogamia Musci. *Hab.* Mountains of Europe.

Med. Prop. and Action. The sporules are demulcent. They are, however, almost solely used externally in the form of powder or ointment (gr. lx., Adip. oz. j.).

Dose, gr. x.—gr. xx.

1745. *Therapeutic Uses. In the Diarrhœa of Infants*, it is a popular German remedy. Hufeland speaks favourably of it, and Behrend* recommends the following formula :—℞ Sem. Lycopod. ʒij., Aq. Fœnic. fʒiv., Gum Acac. ʒj., M. Dose, a tablespoonful every hour.

1746. *In Excoriation and Erysipelas of the Thighs, Nates, &c. of Children*, the sporules are said to be a soothing application. Bouchet says that water glides over the skin which is covered with it, as it would over oil-silk. Rosenstein, Vogel, and others strongly recommend its use, and advise its being applied in the form of ointment with the Oxide of Zinc and Lard. (Dr. Willshire.†)

1747. *In Plica Polonica*, Lycopodium is considered almost a specific. It is used both externally and internally.

1748. LYTHRUM SALICARIA. Purple Loose Strife. *Nat. Ord.* Lythrariæ. *Linn. Syst.* Dodecandria Monogynia. *Hab.* Europe.

Med. Prop. and Action. Gentle astringent and tonic. It may be given in decoction (oz. j. ad Aq. Oj.), in doses of fl. oz. j.—fl. oz. ij.

Dose, gr. xxx.—lxxx.

1749. *Therapeutic Uses. In Chronic Diarrhœa and Dysentery*, it was found very beneficial by De Haen,‡ who recommends it in decoction (*ut supra*) after a gentle aperient.

1750. *In Catarrhal Affections of the Bladder*, Dr. Prout§ speaks favourably of it. He considers it more especially useful in those forms and stages of the affection marked by irritative excitement rather than by vascular activity, or by organic disease.

1751. MAGNESIA. Magnesia. MgO. Protoxide of Magnesia. A compound of Magnesium 60, Oxygen 40, in 100 parts; or 1 Eq. Magnesium = 12, +1 Oxygen = 8 = 20.

* Hufeland's Journ., vol. xxxvi.
† Med. Times, vol. xvii. p. 211.
‡ Rat. Med., par. iii. p. 195; and par. iv. p. 250.
§ On Stomach and Renal Diseases, 3rd Ed., op. cit.

MAGNESIA LEVIS. MgO. Prepared by burning light Carbonate of Magnesia in a Cornish or Hessian Crucible at a red heat, as long as any of the powder effervesces with dilute Sulphuric Acid.

Med. Prop. and Action. Antacid, in doses of gr. x.—xx.; laxative, in doses of gr. xxx.—gr. lx.—gr. xc.; for a child the dose is from gr. ij.—x. It is supposed by Hufeland to possess, in addition to its antacid, a specific property of diminishing gastro-intestinal irritation, by a directly sedative action. As an antacid, it is preferable to the Carbonate, as the latter, when brought in contact with the acid of the stomach, gives rise to much flatulence. After exerting its antacid effects in the intestinal canal, it becomes absorbed, and renders the urine alkaline. It is, therefore, of use in increased excretion of uric acid and urates. As an aperient, it is mild and unirritating, and is well adapted for children: it may be given alone in a little milk, or combined with a few grains of Rhubarb. It is an antidote *in poisoning by the mineral acids.*

Offic. Prep. of Magnesia Levis: Pulvis Rhei Compositus (Gregory's Powder) (Powdered Rhubarb oz. ij.; Light Magnesia oz. vj.; Powdered Ginger oz. j.). Dose, gr. lx.—gr. cxx.

Dose, of Magnesia or Magnesia Levis: as an antacid, gr. x.—gr. xx.; as a laxative, gr. xxx.—gr. xc.

Incompatibles. Acids; Acidulous Salts; Hydrochlorate of Ammonia; Metallic Salts; Alum.

1752. *Therapeutic Uses. In Acidity of the Primæ Viæ, Cardialgia, Sympathetic Vomiting, and some irritated states of the Stomach,* Magnesia, in doses of gr. xv.—gr. xx., may be given with advantage. *In the Heartburn of Pregnancy,* Dr. Simms particularly recommends the following formula:—℞ Magnes. Ust. ʒj., Aq. Ammoniæ fʒj., Spt. Cinnam. fʒiij., Aq. fʒvss., M. Dose, two or three table-spoonfuls, immediately after every meal, or when required. (Dewees.*)

1753. *In Eczema,* Dr. J. Green† states that of all applications none is so generally useful as ʒj. of Calcined Magnesia, rubbed into ʒij. of melted Lard. The ointment, being a little warmed, is smeared over the surface, and then covered with tissue-paper, and the longer it can be allowed to remain on the better. It may be applied once or twice daily. (See also MAGNESIÆ CARBONAS.)

1754. MAGNESIÆ BICARBONATIS AQUA. Solution of the Bicarbonate of Magnesia. Fluid Magnesia is obtained by subjecting Carbonate of Magnesia, diffused through water, to the action of a current of Carbonic Acid Gas under pressure (Beng. Ph.). It may be extemporaneously prepared by pouring a bottle of ordinary Soda-water over some common light Carbonate of Magnesia in a tumbler.

Med. Prop. and Action. The same as Magnes. Carbonas, but milder. The dose, as an antacid, is fl. drm. ss.—fl. oz. j.; as a purgative, fl. oz. iij., or more.

* Diseases of Females, p. 212.

† Lancet, 1841-2, vol. ii. p. 676.

If fl. oz. j. is mixed with Citric Acid or Lime-juice, it forms an agreeable effervescing aperient.

Therapeutic Uses. The same as Magnesiæ Carbonas.

1755. MAGNESIÆ CARBONAS. Carbonate of Magnesia 3 (MgO, CO_2, +HO) + MgO, 2 HO. Magnesiæ Carbonas Ponderosum (Ph. Dub.). Sub-carbonate or Hydrated Carbonate of Magnesia. A mixture of Carbonate and Hydrate of Magnesia.

MAGNESIÆ CARBONAS LEVIS. Light Carbonate of Magnesia. Identical in chemical composition with the Carbonate of Magnesia.

Med. Prop. and Action. Purgative, in doses of gr. xx.—gr. lx.; antacid from gr. v.—gr. xx. It is particularly adapted as a purgative for children, in doses of gr. ij.—v., and may be given in Aq. Anethi, or combined with Rhubarb. Milk is also a good vehicle for it. Its purgative action is supposed, in a great measure, to arise from the Magnesia combining with the acids of the alimentary canal, forming with them soluble compounds; "For," observes Dr. A. T. Thompson,* "if no acid be present, Magnesia does not appear to increase in any degree the peristaltic motion of the bowels." If given in large and continuous doses, it may prove hurtful by accumulating in the intestines. Sir B. Brodie† mentions a case in which, after death, many pounds of Magnesia were found collected in the colon, above a contracted part of the rectum.

Dose of the Carbonate or Light Carbonate, gr. v.—gr. xx., as an antacid; as an aperient, gr. xx.—gr. lx.

Incompatibles, the same as Magnesia Usta; also Lime Water.

1756. *Therapeutic Uses. In Acidity of the Primæ Viæ*, gr. xx. of Magnesiæ Carb. in some aromatic water or milk, proves eminently serviceable. *In Sympathetic Vomiting, particularly in that of Pregnancy*, attended with acidity, it also occasionally affords complete relief; and *in Cardialgia* arising from the same cause, Dr. Symonds‡ states that he has found it successful when a great variety of other means had been unavailing. It is best taken immediately after a meal. *In Pyrosis*, it is occasionally effectual.

1757. *In the Diarrhœa of Children*, it proves valuable as an antacid and absorbent. It is best combined with a few grains of Rhubarb and an aromatic. *In Aphthæ and Aphthous Ulceration*, it may also be given with advantage.

1758. *In Calculous Diseases, when lithic or uric deposits* in the urine indicate the exhibition of alkalies, Sir B. Brodie§ prefers the use of Magnesia to other remedies of the same class. He considers that it does not possess the same attenuating action on the fluids of the body, as that which is rendered soluble, by its combination with the acid in the stomach, can alone enter into the circulation. He advises the following formula, which is

* Dispensatory, p. 1076.
† Dis. of the Urinary Organs, p. 204.
‡ Lib. of Med., vol. iv. p. 79.
§ Op. cit.

generally found to agree well with the stomach, and to produce a very immediate effect on the urine:—℞ Magnesiæ Carb. gr. vj., Potass. Bicarb. gr. xij., Potassæ Tart. gr. xv., M. ft. pulv. vespere sumend.

1759. *In Gout*, antacids are often of remarkable service in correcting the morbid state of the urine. "Magnesia, both Calcined and Carbonated," observes Dr. Copland,* "has been generally employed, and is preferable, on the whole, to any other absorbent, inasmuch as it acts gently upon the bowels and kidneys without weakening the digestive mucous surface. Its effects are often very remarkable."

1760. *In the Flatulence of Childhood*, a few grains of Magnesia in any aromatic water, particularly in Aq. Anethi, are generally very effectual.

1761. *In Poisoning by Oxalic and the strong Mineral Acids*, it is a valuable antidote, but not superior to Chalk.

1762. *In Diabetes*, Dr. Willis† speaks in the highest terms of the value of Magnesia. In addition to his own testimony, he adduces that of Hufeland, who speaks favourably of it, and mentions two cases treated by Mr. B. Phillips, in which, under the use of this remedy, the sugar disappeared from the urine, and the thirst and all the other symptoms of the disease were immediately relieved. Subsequent experience has shown, that though occasionally useful as a palliative, it is of no value as a curative agent.

1763. *In Herpes Zoster*, to relieve the deep-seated pain in the chest, Dr. A. T. Thompson‡ advises the following formula:—℞ Magnes. Carb. ℈j., Vin. Colchici, T. Opii ää f℥ss., Mist. Camph. f℥j., M. ft. haust.

1764. MAGNESIÆ CITRAS. Citrate of Magnesia: may be formed extemporaneously by mixing the solutions of 240 grs. of Citric Acid and 210 grs. of Magnes. Carb. and evaporating.

Med. Prop. and Action. Mild purgative. Its operation is much milder than the Sulphate; and it has the advantage of being devoid of any unpleasant taste. The granulated effervescing Citrate is a useful and elegant form for administration.

Dose, gr. clxxx., or more.

1765. *Therapeutic Uses. In Febrile and Inflammatory Attacks in the Puerperal state*, when a mild refrigerant aperient is required, the following may be employed:—℞ Acid. Citric. gr. xxx., Aq. fl. oz. j., Syr. Aurant. fl. drs. ij. Add this to fl. drs. x. of fluid Magnesia (Bicarb.) and drink whilst effervescing.

1766. *In Hydrocephalus*, Dr. Cheyne found ℥j.—℥ij. of Car-

* Dict. Pract. Med., vol. ii. p. 49.
† On Urinary Diseases, 8vo, 1839.
‡ Cyc. Pract. Med., vol. ii.

bonate of Magnesia, saturated with lemon-juice, taken every two or three hours, sit well on the stomach, even when it was irritable; and act freely as a purgative in most cases. He advises its use.

1767. *In Nervous and Dyspeptic Headaches*, a draught similar to that advised in sect. 1765 is often very effectual. It should not be had recourse to frequently, as a constant repetition is likely to injure the tone of the gastric mucous membrane.

1768. MAGNESIÆ SULPHAS. Sulphate of Magnesia. $MgO, SO_3 + 7HO$. Epsom Salts. *Comp.* 1 Eq. Magnesia = 20, + 1 Sulphuric Acid = 40, + 7 Water = 63 = 123, Eq. Wt.

Med. Prop. and Action. Purgative, in doses of gr. cxx.—oz. j., dissolved in Oss. of Water, or Infusion of Senna. A smaller relative dose is required if the salt be largely diluted; thus, oz. ss. of the salt, in Oj. of fluid, acts quite as powerfully as double the quantity in only Oss. of fluid. It is a refrigerant purgative, lowering the force of the pulse, and producing a small degree of depression. It is apt to produce flatulence, to avoid which it should be given in some aromatic water. If it excite vomiting, this may generally be obviated by the addition of a few drops of dilute Sulphuric Acid; it is best given in combination with Senna, whose purgative effect it promotes, at the same time that it modifies its griping tendency. The Compound Infusion of Roses is a good vehicle for its administration. It is supposed to operate chiefly on the duodenum. By moderate exercise in the open air, while taking this salt, its purgative operation is diminished, and its diuretic effect increased. Dr. O'Shaughnessy* judiciously directs that it should not be administered during the prevalence of Cholera, as it is apt to occasion too profuse and exhausting evacuations, and thus to bring on an attack of that disease. I have generally observed that natives, and inhabitants of the tropics, bear the operation of Epsom Salts very badly; it induces in them a great depression of the system, and often exhausting purgation. It is best adapted for febrile and inflammatory attacks occurring in persons of a robust, plethoric habit. In small doses and freely diluted, it acts as a diuretic. It is an antidote in poisoning by the Salts of Lead and Barytes. It is sometimes added to purgative glysters.

Offic. Prep. Enema Magnesiæ Sulphatis (Sulphate of Magnesia oz. j.; Olive Oil fl. oz. j.; Mucilage of Starch fl. oz. xv.).

Dose of Sulphate of Magnesia: as a purgative, gr. cxx.—oz. j.; as a diuretic, gr. xx.—gr. xl., freely diluted.

Incompatibles. Alkalics; the Carbonates; Lime Water; the Chloride of Calcium; and Acetate of Lead.

1769. *Therapeutic Uses. In obstinate Constipation*, a mercurial purgative, followed in a few hours by Magnes. Sulph. oz. ss. in Infus. Sennæ Oss., is often very effectual. (See sect. 1493.)

1770. *In Dyspepsia, accompanied by Costiveness*, the Sulphate of Magnesia, in small doses, has been found very effectual. The best mode is to dissolve oz. j. in Oiss. of Infusion of Gentian or Quassia, with the addition of fl. drs. ij. of Aromatic Spirit of Ammonia, and of this to drink a wine-glassful every morning fasting. Mr. Langston Parker† speaks favourably of the fol-

* Beng. Pharm., p. 337.

† On Diseases of the Stomach.

lowing mixture :— ℞ Magnes. Sulph. ʒvj., Magnes. Subcarb. ʒiss., Vin. Aloes fʒvj., T. Humuli fʒij., Acid. Hydrocyan. Dil. ♏xv., Infus. Cascarillæ fʒvij., M. sumat. coch. amp. iij. bis in die.

1771. *In Febrile and Inflammatory Diseases*, it is particularly serviceable. Dr. Christison * speaks highly of the following combination as a purgative in fevers :—℞ Magnes. Sulph. ʒiss., Ant. Pot. Tart. gr. ij., Aq. fʒxij., M. Of this, fʒij.—fʒiv. should be given every one or two hours, according to the effect produced. The refrigerant sedative action of this is often unequivocal. In the later stages, particularly if the fever assume a typhoid character, this formula should be modified.

1772. *In Puerperal Intestinal Irritation*, it is desirable to relieve the diarrhœa, which so often accompanies this state, otherwise it induces great debility. For this purpose, Dr. Locock † states that he has often found advantage from occasional very small doses (gr. viij.—x.) of Magnes. Sulph. in an aromatic water, with v.—vj. drops of T. Opii ; Chalk Mixture, Catechu, &c., are inadmissible.

1773. Malva Sylvestris. Common Mallow. *Nat. Ord.* Malvaceæ. *Linn. Syst.* Monadelphia Polyandria. *Hab.* Europe.

Med. Prop. and Action. Demulcent, either as a drink or fomentation, in infusion or decoction. It is inferior to Althæa.

Therapeutic Uses. The same as Althæa.

1774. Manganesii Binoxidum vel Oxidum. The Binoxide, or Black Oxide of Manganese. MnO_2. *Comp.* Manganese 63·64, Oxygen 36·36, in 100 parts; or, 1 Eq. Manganese = 28, + 2 Oxygen = 16 = 44, Eq. Wt.

Med. Prop. and Action. Tonic and alterative. M. Hannont has investigated its properties. He considers that Manganese in its properties closely resembles Iron, and is applicable to the same class of diseases; in one respect, however, it differs; namely, in not being found in the fæces of persons who take it, or at least in very small quantity. *In simple Anæmia*, he found it to act as beneficially and as rapidly as Iron, and the benefit appeared to be more permanent. It should not be persevered in so long as Iron, as its salts are more rapidly assimilated. The Sulphate and Carbonate of the Protoxide have been given in small doses in *Anæmia*. In doses of gr. lx. to gr. cxx., the former has a purgative effect. From some experiments of Dr. Goolden§ made with the Sulphate of Manganese, it appears to exercise a specific influence on the liver and gall-bladder. Externally it is used in the form of ointment (gr. lx.—gr. cxx., Lard oz. j.) or gargle (gr. cxx.—clxxx., Barley Water fl. oz. vj.). It is of great importance in the process for setting free Chlorine as a disinfectant (see Chlorum).

Dose of Binoxide of Manganese, gr. iij.—gr. x.—gr. xx., thrice daily. It is rarely prescribed.

* Lib. of Med., vol. i. p. 178.
† Ibid., vol. i. p. 363.
‡ Rev. Méd. Chir. June 1849.
§ Med. Gaz., 1844-5.

1775. *Therapeutic Uses.* It has been employed in *Syphilis, Scrofula, Scorbutus, and many diseases of the Skin,* both externally and internally, but it has fallen into disuse. Its effects are very uncertain.

1776. *In Anæmia,* it is advised by M. Hannon (see *ante*).

1777. As a remedy *in certain irritable conditions of the Stomach and forms of Dyspepsia,* the Oxide has been recommended by Dr. Leared. Corroborative evidence as to its value in cases of Gastric Irritation is given by Dr. Goddard Rogers.* The dose given is gr. x.—xv., thrice daily.

1778. MANIHOT UTILISSIMA. Jatropha (Janipha) Manihot. Bitter Cassava. *Nat. Ord.* Euphorbiaceæ. *Hab.* S. America and West Indies.

Med. Prop. and Action. The root abounds in a poisonous milky juice, which proves fatal to animals in a very short period. The poisonous quality is entirely destroyed by heat; hence, the juice boiled with meat, pepper, &c., forms a wholesome soup; the meal, or residuum, is made into cakes and bread; and the starch, properly prepared, is the Tapioca, so well known as an article of diet in the sick-room. The fresh root causes violent vomiting, tremor of the whole body, swelling of the face and body, convulsions and delirium. It is one of the poisons most frequently employed by the Obeah men of Jamaica.

1779. *Therapeutic Uses. To ill-conditioned Ulcerations, particularly to those of Yaws* (*Frambœsia*), a poultice of the scraped roots is a common remedy among the negroes. I have seen the ulcerations of yaws improve under its use, but it is not unattended with danger, as, even when thus applied, the poisonous effects of the fresh plant manifest themselves.

1780. *To allay the irritation and pain occasioned by Chigres* (Pulex Penetrans), Dr. Hamilton † speaks highly of a cataplasm of the scraped root (fresh).

1781. *In Atonic Dyspepsia,* Cassava cakes prove useful in the same way as oat-cakes, for which they are a good substitute.

1782. MANNA. The concrete exudation obtained by incisions from the stem of Fraxinus Ornus et Rotundifolia. The European Flowering Ash. *Nat. Ord.* Oleaceæ. *Linn. Syst.* Diandria Monogynia. *Source,* Southern Europe and the islands of the Mediterranean, &c. There are several kinds of Manna met with in commerce; the best is *the flake Manna.*

Med. Prop. and Action. Laxative. From its sweet taste and general mild action, it is well adapted for children: but it is apt to cause griping and flatulence. It is a good adjunct to Senna and the neutral salts, to cover their nauseous taste. It consists chiefly of a peculiar sugar termed *Mannite* ($C_6H_7O_6$). It contains, besides, a small amount of bitter matter.

Dose, gr. lx.—oz. ss.

* Lancet, March 5, 1864.

† Pharm. Journ., vol. v. p. 27.

1783. *Therapeutic Uses.* Similar to those of Senna, but it is chiefly used as an adjunct. *In Retention of the Meconium in new-born Infants,* Dr. Burns * speaks of Manna as one of the best purgatives which can be used.

1784. MARRUBIUM VULGARE. White Horehound. *Nat. Ord.* Labiatæ. *Linn. Syst.* Didynamia Gymnospermia. *Hab.* Europe.

Med. Prop. and Action. Slightly stimulant, expectorant, and diuretic. It is best given in infusion (gr. cclx.—Aq. Oj.), in doses of fl. oz. ij., every three or four hours.

1785. *Therapeutic Uses. In Catarrh,* it has long been a popular remedy. Dr. A. T. Thompson † states that he has witnessed much benefit produced by it in Catarrh in which there is much cough, with copious excretion of mucus, nocturnal sweats, and great prostration of strength. *In Phthisis,* he adds, that he has found it serviceable.

1786. MASTICHE RESINA. Mastich. Resinous exudation from the incised stem of Pistacia Lentiscus. Lentisk Tree. *Nat. Ord.* Terebinthaceæ. *Linn. Syst.* Diœcia Pentandria. *Source,* the islands and coasts of the Mediterranean. Imported chiefly from Turkey and the Levant.

Med. Prop. and Action. Astringent and diuretic; used in the same cases as Turpentine, to which it is inferior in every respect, excepting the taste. It was formerly esteemed in uterine diseases, but is now rarely employed.

Dose, gr. xx.—gr. xl.

1787. *Therapeutic Uses. In Diarrhœa of Infants,* Dr. Ure ‡ states that Mastich water (water in which Mastich had been boiled) is a popular and successful remedy among the Albanian physicians.

1788. *In Toothache,* great relief occasionally results from introducing into a carious tooth a piece of cotton saturated with a solution of Mastich in Ether or Chloroform.

1789. MATICA. Matico. The leaves of Artanthe elongata or Piper angustifolium. *Nat. Ord.* Piperaceæ. *Linn. Syst.* Diandria Trigynia. *Source,* Peru.

Med. Prop. and Action. Astringent; a powerful topical styptic. It may be given internally in powder, infusion, or tincture (Matico oz. viij.; Proof Spirit Oij.), the latter in doses of fl. drm. j.—fl. drs. ij. Matico contains only traces of Tannic Acid, a peculiar acid, *Artanthic Acid,* and a volatile oil or Camphor (Garrod). It contains no Piperine, although it has been said to affect the genito-urinary mucous membrane and rectum like pepper or cubebs. Its value as a topical styptic is so much better established than its power as an astringent when taken internally, and it contains so small a quantity of astringent matter,§ that the former effect has been supposed to be due to the mechanical structure of the leaf. For external application, the

* Principles of Midwifery.
† Cyc. Pract. Med., vol. ii. p. 126.
‡ Compend. of Mat. Med., p. 117.
§ Garrod, Ess. of Mat. Med., p. 281.

underside of the leaf should be used, being more powerfully styptic than the upper. The powdered leaves are also frequently used. It was introduced into England by Dr. Jeffreys,* in 1839. Much interesting information on its properties will be found in a valuable paper by Prof. Bentley in Pharm. Journal, 1863.

Offic. Prep. Infusum Maticæ (Matico cut small oz. ss.; Boiling Distilled Water fl. oz. x.). Dose, fl. oz. j.—fl. oz. ij.

Dose of Powdered Matico, internally, gr. xxx.—gr. cxx.

1790. *Therapeutic Uses. In internal Hæmorrhages*, it has been said to be very successful. *In Hæmatemesis, Hæmaturia, Hæmoptysis, &c.*, it is advised by Dr. Jeffreys.* *In Menorrhagia and Uterine Hæmorrhage*, it has been highly praised. A case illustrative of its efficacy is mentioned by Mr. Horne; and Dr. Giraud † relates a case in which the pounded leaves, made into a paste and introduced into the vagina, arrested the discharge, when a strong solution of Argent. Nit. had previously failed. *In Epistaxis*, it has been stated to be very effectual; a severe case is related by Mr. Horne,‡ which, after resisting all other remedies, yielded to the administration of Matico. In slight cases of *Hæmoptysis*, Dr. Theophilus Thompson § observes that the Infusion of Matico alone is often sufficient.

1791. *Hæmorrhage from Leech-bites, from superficial wounds, after the extraction of Teeth, &c.*, may be readily arrested by the local application of the underside of the leaf.

1792. *In Leucorrhœa*, depending upon an atonic state of the secernent capillaries of the mucous lining of the uterus and vagina, Dr. B. Lane ‖ employed an injection of Infusion of Matico with decided benefit.

1793. *In Atonic Diarrhœa*, Dr. Lane administered the infusion, in some cases with excellent effect, in others with no benefit. The results were unsatisfactory.

1794. MEL. Honey. A Saccharine Secretion deposited by the Hive Bee (Apis Mellifica) in the honeycomb.

Med. Prop. and Action. Similar to those of Sugar, but slightly laxative. It is much used to sweeten gargles and to cover the taste of nauscous medicines.

Offic. Prep. 1. Mel Depuretum (Clarified Honey). Dose, *ad libitum*.
2. Oxymel. (See Acidum Aceticum.)
3. Mel Boracis. (See Sodæ Biboras.)

Honey also enters into the composition of several officinal confections.

1795. MELISSA OFFICINALIS. Common Balm. *Nat. Ord.* Labiatæ. *Linn. Syst.* Didynamia Gymnospermia. *Hab.* Europe.

Med. Prop. and Action. Mild stimulant and tonic, with a slight degree of astringency. It is also said to be diaphoretic. It is best given in infusion (oz. ss., Aq. Ferv. Oj.), in doses of fl. oz. iss.—fl. oz. ij.

* Lancet, Jan. 7, 1839; and Trans. of Prov. Med. Assoc., vol. xi. 1843.
† Prov. Journ., April 1851.
‡ Lancet, April 13, 1849.
§ Ibid., July 19, 1851.
‖ Med. Gaz., Oct. 6, 1843.

1796. *Therapeutic Uses.* It was formerly highly esteemed, but is now rarely employed, excepting in infusion, as a diluent in fevers. It is still esteemed in France as a stimulant in *Hysteria and in Nervous Affections.*

1797. MENTHA PIPERITA. Peppermint.

MENTHA PULEGII. Pennyroyal.

MENTHA VIRIDIS. Spearmint.

These three plants agree closely in botanical character (*Nat. Ord.* Labiatæ), in their habitat (*Europe*), and in their medicinal properties. The volatile oil which they respectively yield is the best form for internal use. Oleum Pulegii is not officinal in the Brit. Pharm.

Med. Prop. and Action. All three are aromatic, stimulant, carminative, and stomachic. The volatile oils are used as stimulant stomachics, and as adjuncts to purgatives. The Distilled Waters are carminative, and are much used as vehicles for saline aperients.

Offic. Prep. Of Mentha Piperita:—1. Oleum Menthæ Piperitæ (the oil distilled in England from the fresh flowering plant). Dose, ♏j.—v. on sugar or suspended in mucilage.

2. Aqua Menthæ Piperitæ (English Oil of Peppermint fl. drm. iss.; Water Ciss.; Distil Cj.). Dose, fl. oz. j.—fl. oz. ij.

3. Spiritus Menthæ Piperitæ (English Oil of Peppermint fl. oz. j.; Rectified Spirit fl. oz. ix.). Dose, ♏v.—♏l. It contains forty-seven times as much Ol. Menth. Pip. as Sp. Menth. Pip. Ph. Lond.

Of Mentha Viridis:—1. Oleum Menthæ Viridis (the Oil distilled in England from the fresh herb when in flower). Dose, ♏j.—v. on sugar or in mucilage.

2. Aqua Menthæ Viridis (English Oil of Spearmint fl. drs. iss.; Water Ciss.; Distil Cj.). Dose, fl. oz. j.—fl. oz. ij.

Dose of Oleum Pulegii, ♏j.—♏v. on sugar or in mucilage.

1798. *Therapeutic Uses. In Flatulence, Flatulent Colic, Nausea, and Spasmodic Affections of the Bowels,* the volatile oil of these plants (it is not a matter of importance which is selected) may be given with advantage. A few drops of Laudanum may be conjoined, according to the urgency of the symptoms. Their efficacy is often increased by the addition of Magnesia. *In Puerperal Fever,* the Oil of Peppermint has been proposed as a substitute for the nauseous Oil of Turpentine by Mr. Dove,* of Norwich. In severe cases he employed it, giving ♏xxx.—xl. in divided doses in the twenty-four hours preceding its use by a stimulating aperient. The effects were, on the whole, very satisfactory. Mr. Dove considers that probably all essential oils would act as well as Turpentine.

1799. MENYANTHES TRIFOLIATA. Buckbean, or Marsh Trefoil. *Nat. Ord.* Gentianaceæ. *Linn. Syst.* Pentandria Monogynia. *Hab.* England.

* Brit. Med. Journ., April 9, 1859.

Med. Prop. and Action. Tonic and astringent, in doses of gr. xx.—gr. xxx.; purgative, in doses of gr. lx.; emetic in larger quantities. Dose of the Infusion (oz. ss.—Aq. Ferv. Oj.), fl. oz. iss.; of the Extract, gr. x.—gr. xv.

Therapeutic Uses. Similar to Gentian, for which it may be substituted.

MEZEREUM. See DAPHNE MEZEREUM.

1800. MONESIA. Monesiæ Cortex. The bark of Chrysophyllum Buranheim. *Nat. Ord.* Sapotaceæ. *Linn. Syst.* Pentandria Monogynia. *Source*, the Brazils. An extract obtained from the same has also been introduced in France, called Extractum Monesiæ.

Med. Prop. and Action. Astringent. At the time of its introduction, in 1839, it was supposed to have many advantages over Rhatany, Kino, &c., but experience has failed to detect any superiority. It contains Tannin, and a peculiar principle, *Monesine.* It may be used in the form of ointment (gr. lx. —Lard gr. ccccxx.).

Dose, gr. xij.—gr. xl. daily.

1801. *Therapeutic Uses. In Atonic Hæmorrhages, Leucorrhœa, Chronic Blenorrhagia, Chronic Diarrhœa*, and other diseases in which astringents are indicated, it has been employed with benefit, but it does not merit preference to other remedies of the same class. The Extract may be given to the extent of gr. xxx. daily.

1802. MORUS. The Mulberry. The fruit of Morus Nigra. *Nat. Ord.* Urticaceæ. *Linn. Syst.* Monœcia Tetrandria. It is a pleasant refrigerant, but its chief use in medicine is as a colouring agent.

Offic. Prep. Syrupus Mori (Mulberry Juice fl. oz. xx.; Sugar lbs. iiss.; Rect. Spirit fl. oz. iiss. Dissolve the Sugar in the Juice by a gentle heat, and set aside for twenty-four hours; then remove the scum, pour off the clear liquid from the dregs, if any appear, and add the Spirit). Dose, *ad lib.*

1803. MORPHIA. Morphine. $C_{34}H_{19}NO_6$. An alkaloid contained in Opium, in which it exists in combination with Meconic and Sulphuric Acids. It is the chief narcotic principle in Opium. It is soluble in Alcohol and solutions of the caustic fixed alkalies, but almost insoluble in Ether and Water. It has about four times the strength of good Opium, of which it forms about 10 per cent. (Garrod.*)

MORPHIÆ ACETAS. Acetate of Morphia ($C_{34}H_{19}NO_6$, $C_4H_3O_3+HO$). Soluble in Water and Alcohol. Not officinal in the Brit. Pharm.

* Ess. of Mat. Med. and Therap., p. 161.

MORPHIÆ HYDROCHLORAS. Hydrochlorate of Morphia ($C_{34}H_{19}NO_6$, HCl + 6 HO). Soluble in Spirit and in 20 parts of Water. Officinal in the Brit. Pharm.

MORPHIÆ SULPHAS. Sulphate of Morphia ($C_{34}H_{19}NO_6$, SO_3 + 6 HO). Readily soluble in Water. Not officinal in the British Pharmacopœia.

Med. Prop. and Action. Morphia and its salts are powerfully narcotic. On account of their greater solubility, the salts of Morphia are generally employed as therapeutic agents. Their advantages over Opium are, that they produce a smaller degree of vascular and arterial excitement, less headache and vertigo, less subsequent depression, less constipation, and a more quiet and refreshing sleep, undisturbed by dreams. At the same time, they cannot be substituted in all, nor indeed in the majority of cases, for Opium; but are chiefly applicable to relieve nervous irritability, and to induce tranquillity of the system. "Either of these salts," observes Dr. A. T. Thompson, "when administered in doses of a quarter of a grain, repeated at short intervals, causes a sensation of fulness in the head, some obscurity of sight, tingling of the ears, cephalalgia, vertigo, and a tendency to sighing and sleep. The pupils are sometimes dilated, at other times contracted, and occasionally they are not at all affected. The pulse is not much accelerated. Occasionally there is a sensation of itching all over the skin, frequently nausea, and a difficulty of passing urine. In large doses, the cerebral excitement is alarming." From some observations of M. Bailly, it appears that full doses of the Acetate of Morphia sometimes excited shocks like those of electricity; when the patient was lying in the horizontal position, the muscles lost much of their contractility, and the sight was greatly impaired. As in these cases the pulse was diminished in force and frequency, Bailly was led to infer that Morphia acts as a sedative on the heart, and as a stimulant on the nervous system. It would perhaps have been nearer the truth, to say that it acts as a stimulant on the nerves of sensation, and as a sedative on those of motion. It seldom increases the temperature, although sometimes its salts greatly augment the exhalant function of the skin. In over-doses, whilst the upper part of the body is bathed in a viscid sweat, the lower extremities are cold; there are violent tremors, the body acquires a livid hue, the face assumes a pinched, cadaverous aspect, and death ensues without convulsions (Thompson).* Its full physiological effects may be speedily induced if it be introduced into the system by the hypodermic method. See also OPIUM.

Offic. Prep. Of the Hydrochlorate of Morphia:—1. Liquor Morphiæ Hydrochloratis (Hydrochlorate of Morphia grs. iv.; Dilute Hydrochloric Acid ℥viij.; Rectified Spirit fl. drs. ij.; Distilled Water fl. drs. vj.). Dose, ℥xv.—fl. drm. j. upwards. Half a grain of Hydrochlorate of Morphia is contained in each fl. drm. It is half the strength of Liq. Morph. Hydrochloratis (Pharm. Lond.).

2. Suppositoria Morphiæ (Hydrochlorate of Morphia grs. iij.; Refined Sugar grs. xxx.; Prepared Lard and White Wax of each q. s. Divide into twelve cones; each cone to be dipped in a mixture of three parts of Wax and eight of Lard melted together). Each suppository contains a quarter of a grain of Hydrochlorate of Morphia.

3. Trochisci Morphiæ (Hydrochlorate of Morphia grs. xx.; Tincture of Tolu fl. oz. ss.; Refined Sugar in powder oz. xxiv.; Powdered Gum Arabic oz. j.; Mucilage of Gum Arabic fl. oz. ij. or q. s.; Boiling Distilled Water fl. oz. ss. Divide into 720 lozenges). Each lozenge contains one thirty-sixth of a grain of Hydrochlorate of Morphia.

4. Trochisci Morphiæ et Ipecacuanhæ (the same ingredients as Trochisci Morphiæ, with the addition of grs. lx. of Ipecacuanha. Divide into 720 lozenges). Each lozenge contains one thirty-sixth of a grain of Morphia and one-twelfth of a grain of Ipecacuanha.

* Cye. Pract. Med., vol. iii.

A solution of Bimeconate of Morphia has been introduced into medicine by Mr. Squire. It is of the same strength as Tincture of Opium. It is said to produce less cerebral disturbance and less constipation than other preparations of Opium. (See Opium).

Dose of the Morphia Salts, gr. $\frac{1}{8}$—$\frac{1}{4}$—$\frac{1}{2}$, up to gr. j. For hypodermic injection, ♏xv.—♏xxx. of a watery solution of the Sulphate or Acetate, containing gr. iv. to the fl. oz. This plan of administration should be employed cautiously, and the patient carefully watched.

Therapeutic Uses. Similar to Opium, for which it may be substituted in proportionate doses.

1804. *In Tic Douloureux and other Neuralgic Affections*, the endermic application of Morphia occasionally affords great relief. Over the surface, denuded by a blister, the Morphia (gr. ss.—gr. j.) should be sprinkled; and if relief is not obtained in a few hours, it may be repeated. M. Bannieux* relates several cases in which its efficacy was unequivocal. Inoculation with Morphia over the affected part is advised by Dr. Brackett.† By this means he cured an obstinate case of *Sciatica*. Scanzoni successfully treated *Puerperal Convulsions* by subcutaneous injections of Morphia.‡ In *Sciatica*, the hypodermic method of introducing Morphia has been successfully employed by Dr. Levick § and others. It has been found by Dr. Henry Bennett ‖ of great use in relieving *Uterine Pain*. Dr. Bennett injects ♏xxx. of a solution containing 4½ grs. of Acetate of Morphia to the fl. oz. The Liq. Morphiæ of the Pharm. is objectionable, as it contains spirit which is likely to produce inflammation. It does not seem to matter much in what region of the body the injection is made. Dr. Bennett chooses the præcordial region for uterine and general pain, and for local neuralgia a spot as near the affected region as possible.

1805. *In Chronic Deafness*, Morphia, as advised in the last section, is sometimes effectual. Dr. Hobeke ¶ relates a case in which all other remedies had failed; he then applied a small blister behind each ear, and on the denuded surface sprinkled gr. ss. of Morphiæ Sulph. On the following day the deafness on the left side had ceased, and all the other symptoms were much relieved. *In Inflammation of the Iris and Sclerotic*, Mr. J. Z. Lawrence ** found Morphia produce a marked antiphlogistic effect. Its action apparently depends upon the known power of the remedy of reducing nervous irritability, which may be regarded as the primary cause of the inflammation.

1806. *In Chronic Gastritis*, Morphia is a valuable palliative,

* Bull. Gén. de Thérap., t. xxv. p. 17.

† North-Western Med. and Surg. Journ., Sept. 1851.

‡ See Edin. Med. Journ., May 1860.

§ Med. Times and Gaz., July 18, 1863.

‖ Lancet, March 12, 1864.

¶ Med.-Chir. Rev., No. lxxiv.

** Med. Times, Dec. 21, 1859; and Edin. Med. Journ., Dec. 1862.

although generally inferior to Prussic Acid. Drs. Bardsley and Stokes advise it in doses of gr. $\frac{1}{12}$ twice the first day, three times the second, and so on, increasing the quantity, until the patient consumes 1 or 1½ grains in twenty-four hours. It was found particularly serviceable when there was an abundant secretion of mucus.

1807. *In Hepatic Ileus, Dry Bellyache of the West Indies, violent Colic, and Spasmodic Affections of the Bowels*, the following treatment is stated to be very successful:—A blister is to be applied along the course of the spine, regulated as to size by the extent of the functions involved. To the denuded surface, Morphia in small quantities (gr. ss.—j.) is to be applied. Speedy relief is stated to follow the application. When the biliary secretion is evidently implicated, emetics and purgatives should be simultaneously employed.

1808. *In Hypertrophy of the Heart*, Dr. Hope* recommends Morphia as a palliative. It should be given in doses of gr. ss. and persevered in for a considerable period.

For further therapeutic uses, see OPIUM.

1809. MORRHUÆ OLEUM. Oleum Jecoris Aselli. Cod Liver Oil. The oil extracted by a steam heat not exceeding 180° from the fresh liver of the Cod (Gadus Morrhua) and others of the Family Gadidæ, as the Dorse (Gadus callarias), the Pollack (Gadus pollachius), the Coal Fish (Gadus carbonarius), the Whiting (Gadus merlangus), and the Ling (Gadus molva).

History. Cod Liver Oil has, for a long period, been esteemed in Germany and Holland, in the treatment of scrofulous and rheumatic diseases. It was introduced into England by Dr. Percival, in 1771, as a remedy for Chronic Rheumatism, and was employed in the Manchester Infirmary some time after this period. It, however, fell into disuse till Schenk published an account of sixteen cases of Chronic Rheumatism successfully treated by it. It was not, however, till 1841 that its value was fully understood by British practitioners, when Dr. J. H. Bennett† published an Essay on its properties; since that date it has been fully recognised as a remedy of great power and usefulness in tubercular disease. I may add here, that the oil obtained by boiling from the liver of the Hammerheaded Shark (Zygæna vulgaris) is amongst the native remedies of the Burmese of the Tenasserim Provinces; and I am informed by a respectable priest, that it is advised in some of their most ancient medical writings.‡ The only purpose that I could ascertain for which it was used was to cause the removal of opacity of the cornea; for this purpose they give it internally in large doses.

1810. *Its Chemical Composition* is thus stated by Dr. Garrod:§—"Cod Liver Oil contains *Oleine, Margarine*, various *biliary principles*, as the organic acids and colouring matter of bile; also Phosphoric and Sulphuric Acid, with salts of Lime, Magnesia, and Iron; a peculiar substance, *Gaduin* ($C_{38}O_{23}H_5$), very insoluble in ordinary menstrua, but soluble in Sulphuric Acid, and giving a

* Diseases of the Heart, 3rd Ed.

† Treatise on Oleum Jecoris Aselli, Lond. 1841.

‡ Zevocat, their great medical authority, is supposed to have been contemporary with King David.

§ Essentials of Mat. Med. and Therap., p. 330.

blood red colour to the solution; also *Iodine* and *Bromine*. The Oleine and Margarine of this Oil are said by some to differ from that usually met with, inasmuch as no Glycerine can be obtained by their saponification, but they yield instead a peculiar body called *Propylene*, or Oxide of Propyl. The proportion of Iodine is not more than ·05 per cent." The test for the purity of Cod Liver Oil is Oil of Vitriol. If a little of the Oil be poured on a plate, and a drop of Sulphuric Acid be added, a beautiful lake or crimson colour is produced, spreading from the point of contact with the acid. This is supposed to be due to the action of the acid on the biliary principles contained in the oil.* Pereira states that "Oil of Vitriol is a test for liver oils generally. It does not distinguish one liver oil from another, for it reacts equally with the oil of the liver of the ray, and with oil of the liver of the common cod. Neither does it distinguish good Cod Liver Oil from bad, for it produces its characteristic reaction both with common brown Cod-oil and with the finest and palest qualities. But it serves to distinguish oil procured from the liver, from oil obtained from other parts of the animal."† Iodine or Iodide of Potassium may be added to Train Oil to imitate Cod Liver Oil. This may be detected by shaking the suspected oil with Alcohol, which abstracts the Iodine, or by adding a solution of Starch with a few drops of Sulphuric Acid, by which the blue Iodide of Starch is produced.‡

There are three varieties of Cod Liver Oil met with in commerce—1, the pale; 2, the light brown; and 3, the dark brown. The differences of colour, odour, and flavour in the varieties of Cod Liver Oil depend upon the different methods in which it is prepared, the degree of heat employed, the state of freshness or putrefaction of the livers, the quantity of decomposed matter present in the Oil, and the length of exposure to the air. The oil contained in the cells of the fresh liver is nearly colourless, and the finest specimens are nearly devoid of colour, odour, and flavour, having only a bland, fish-like, and not disagreeable taste. The dark varieties contain more empyreumatic matter and are intensely disagreeable. On the question of the relative value of the different varieties of Cod Liver Oil, the Editors of the edition of Pereira of 1857 remark:—"Experience fully confirms the inference drawn from observation of the chemical constitution of these varieties of Cod Liver Oil, as to their relative therapeutical value. At the Brompton Hospital it has been found that the use of the darker kinds cannot be long continued; the clear and straw coloured inodorous oil is that which is now administered in this institution. Dr. Williams, in the latest edition of his Principles of Medicine, affirms the superiority of the pure fresh oil."§ Dr. De Jongh, however, advocates the use of the darker varieties, on the ground that they contain more volatile acids (butyric and acetic) and biliary matters. It is curious, however, that his analysis of the light brown oil which he recommends, contains no mention of butyric and acetic acids. Moreover, considerable doubt has been thrown on the value of his chemical investigation.‖ The whole experience of English practice is in favour of the pale oil. Dr. Garrod sums up the arguments in its favour thus:—"1. It is the real oil as contained in the liver of the cod-fish, rich in biliary matters, and also in Iodine and other inorganic principles. 2. It contains no products of putrefaction, such as are found in the dark oils. 3. It sits more easily on delicate stomachs. 4. Experience has proved it to be a most effective therapeutic agent."¶ The pale variety is officinal in the British Pharmacopœia. Its sp. gr. is from ·917 to ·920.

1811. *The modus operandi of Cod Liver Oil* is ill understood. Dr. Bennett** considers that its operation consists in the stimulation of the lymphatic glands and vessels, thus increasing the activity of the capillary system. By its action on the former the process of assimilation is facilitated, and the appetite

* Essentials of Mat. Med. and Therap., p. 330.
† Mat. Med., vol. ii. part ii. p. 790.
‡ Op. cit., vol. ii. part ii. p. 788.
§ Pereira, vol. ii., part ii. p. 786.
‖ Op. cit., p. 783.
¶ Brit. and For. Med.-Chir. Rev., Jan. 1856.
** Op. cit., p. 51.

increased. The quantity of the blood is thus improved, and the different organs of the body become better nourished and receive more turgor vitalis. From Dr. Theophilus Thompson's observations, it appears that the Oil improves the richness of the blood; its red corpuscles become increased. Whilst taking it, patients often gain an almost incredible increase of weight, exceeding many times the amount of the Oil which has been taken during the period.* Some assert that its operation is that solely of a nutritive agent; others, that its action is purely chemical; while a third class ascribe all the benefit derived from it to the presence of Iodine and Bromine. Dr. De Jongh† believes that the beneficial operation of Cod Liver Oil does not depend solely upon the Iodine, nor upon the Phosphorus, nor on the biliary matter, nor on the fat, but upon the admixture of these ingredients, the union of the whole forming a compound which acts in a way which cannot be imitated by the disunited components. An observation of Klencke's‡ merits attention. He observes, that there exists a great similarity between this Oil and bile; that the Oil contains fat, resin, and saline constituents of the same character as those of the bile. From this circumstance, he concludes that it acts as a succedaneum to bile in the process of chylification. This view is also supported by Dr. Panck, of Moscow. Dr. Garrod,§ on the other hand, is of opinion that it acts simply as an *oil*, and that it is superior to other oils on account of its being more readily assimilated. If it be true, as Winkler asserts, that the Oleine differs from ordinary Oleine in not yielding *Glycerine*, this may in part explain its value. Dr. Theophilus Thompson and Dr. Williams also conclude that the oil owes its action chiefly to its Oleine. Dr. Williams believes that the Oil acts as a nutrient, affording fat of a better kind, more fluid, less prone to change, and more capable of being absorbed into the tissues than other forms of fat. Dr. Theophilus Thompson‖ thinks that its action is promoted by the addition of Liq. Potassæ.

1812. *The immediate action of Cod Liver Oil* on the stomach and bowels is to produce increased appetite, the proper assimilation of food, and an improved colour and character of the evacuations. The skin, from being acrid, burning, or cold, becomes warm and perspirable, and the health and strength, after some perseverance in the remedy, gradually improve. Occasionally it acts as a diuretic. Most patients acquire *embonpoint* under its use.

1813. *Modes of disguising its taste.* One great objection to the use of this Oil is its nauseous taste. Various modes of disguising it may be tried, thus:—1, it may be given on orange wine or on orange or lemon juice, or on a mixture containing Tr. Aurantii with a little Nitric Acid and Syrup; 2, it may be given floating on porter or bitter ale, or on some aromatic water; 3, in emulsion, with confection of Almonds and T. Cardam. Co.; 4, with the addition of a few drops of Acid. Nitric. Dil. to the vehicle; 5, with hot milk; 6, in the form of pills. To form these Des Champes directs 600 parts of the Oil, 20 of Water, and 80 of Caustic Soda. A mass is formed which, with Tragacanth Powder, can be made into pills. Should it still nauseate, a drop or two of Dilute Hydrocyanic Acid may be added. Mr. Spencer Wells¶ advocates its administration in capsules, either alone or combined with Quinine, the Iodides of Mercury, Iron, &c. Each capsule may contain ℥xx. of the Oil.

1814. *The Dose* varies according to circumstances. Dr. Bennett advises one or two table-spoonfuls, to be taken twice or thrice daily, an hour after a light meal. This dose, for an adult, may be gradually increased. Many patients, however, cannot take such large doses without constant nausea and loss of appetite. It is better in these cases to commence with one or two teaspoonfuls three times a day, and gradually to increase the dose to a table-spoonful or more as the stomach becomes accustomed to it. The best time to administer it is immediately after a meal. It is digested with the food, and it is less liable to repeat. Patients who can take it at no other time will

* Garrod, Ess. of Mat. Med. and Therap., p. 330.

† Treatise on Cod Liver Oil, translated by Dr. Carey, Lond. 1849.

‡ Der Leberthran als Heilmittel auf Grundläge Vielfacher Thatsachen de Leipzig, 1842.

§ Op. cit., pp. 330, 331.

‖ London Med. Gaz., x. 796.

¶ Med. Times and Gaz., Dec. 5, 1857.

sometimes retain a dose if given the last thing before going to bed. M. Trousseau * administers to children doses of from ♏xx.—f℥iij. daily, mixed with syrup. Dr. Klencke directs three table-spoonfuls of the Oil daily, as the smallest dose for an adult to commence with, which quantity may be increased daily to twenty spoonfuls, or until the patient almost entirely lives on the Oil. It is seldom possible, and never advisable, to carry it to this extent. Inunction with the Oil is useful as a supplementary measure.

1815. *Various substitutes* have been proposed. Vegetable oils have been stated by Dr. Duncan and Mr. Nunn, of Colchester, to be nearly, if not equally, efficacious with Cod Liver Oil. Dr. Theophilus Thompson, however, found that Almond Oil or Olive Oil did not enrich the blood in the same way as Cod Liver Oil. He thought that Cocoa-nut Oil bore a nearer resemblance to Cod Liver Oil in this respect. Dr. Bagot † has obtained excellent effects from other fish oils; and in the Madras Presidency, the oil obtained from the livers of the Scer fish has been given an extensive trial. Of twenty-five medical officers, twenty-three record their opinions that, as a therapeutic agent, it is of equal efficacy with the Cod Liver Oil imported from Europe, and is applicable to the same class of diseases. MM. Girardin and Pressier ‡ consider the oil of the liver of the Skate preferable to that of the Cod. Oils also from the livers of the shark and ray closely resemble Cod Liver Oil. Glycerine has also been proposed, but it proved a failure.

1816. *Ozonized Cod Liver Oil* has been thought by some preferable to the ordinary Oil, from the power it has been shown by Dr. E. S. Thompson§ to possess, of reducing the frequency of the pulse, an important point especially in Phthisis. This effect was not perceived when a less quantity than f℥ij. twice daily was administered. It was more marked when this dose was doubled. The Oleine of the Cod Liver Oil, instead of the simple Oil, has been advocated by Dr. Leared,‖ but it does not appear to have been generally adopted.

1817. *Therapeutic Uses. In Scrofula*, confining this term to affections of the subcutaneous lymphatic glands, Cod Liver Oil exercises little influence previous to the occurrence of suppuration; but in the advanced stages, when suppuration has advanced, ulceration commenced, and the general system has become implicated, there is no medicine on which we may rely with more certainty. Klencke relates eight cases of inflammation of the glands, and five of general tuberculosis, in which the Oil was attended with signal benefit.

1818. *In Scrofulous Diseases of the Skin*, it produces the most salutary effects. Dr. Graves,¶ by its means, cured obstinate cases of *Sycosis, Impetigo, and Psoriasis;* an issue being inserted at a distance from the part of the skin affected. Mr. Banks** found *Ichthyosis* yield to its use; and M. Emery†† and Gibert‡‡ employed it with the best effects in *Scrofulous Lupus*. Of seventy-two cases of the last disease, twenty-eight were completely cured by its persevering use. Sir H. Marsh§§ observes, that although the Oil is not of itself capable of curing

* Journ. de Méd., March 1845.
† Dub. Med. Press, March 6, 1850.
‡ Journ. de Pharm., June 1842.
§ Proceed. of Med.-Chir. Society, Feb. 26, 1861.
‖ Med. Times, July 21, 1858.
¶ Clin. Lect., vol. ii. p. 351.
** Dub. Quart. Rev., Aug. 1851.
†† Med. Times, vol. xviii. p. 337.
‡‡ Revue Médicale, Oct. 1844.
§§ Dub. Med. Press, Aug. 21, 1850.

the local disease, it places the patient in a condition to be cured, by checking progressing emaciation, and restoring the yielding strength. In some cases in which he administered it, it did not produce any marked improvement. To be effectual, it must be given in full doses, and be long persevered in.

1819. *In Scrofulous Diseases of the Joints, and in Morbus Coxarius*, it also exercises a powerful and beneficial influence. In Morbus Coxarius, Prof. Syme* speaks favourably of its operation; acting probably, as he observes, as a nutrient tonic. Sir B. Brodie also bears testimony to its value in this class of cases.

1820. *In Caries of Scrofulous Subjects*, the Oil proves eminently serviceable. An illustrative case is quoted by Dr. Bennett†—the patient, a female, suffering from Scrofulous Caries:—Eight fistulous openings led to the diseased bone, the discharge was fetid and profuse, and the patient was in an advanced state of hectic. Amputation was determined upon; but it was proposed to employ Cod Liver Oil as a last resource. It was given, and, after a persevering use of it, the patient perfectly recovered. Mr. Balman‡ regards it as a potent and most valuable remedy, and invariably employs it in this class of cases, as exercising a most beneficial influence.

1821. *In Lumbar Abscess*, depending upon caries of the vertebræ, it often proves of great service. A case is related by M. Taufliеb,§ also quoted by Dr. Bennett, in which a young man, who had an immense abscess in the lumbar region, attended with paralysis of the lower extremities, &c., completely recovered under the persevering use of the Oil.

1822. *In Scrofulous Ophthalmia*, it has been advised; but Mr. Howard‖ states that he has derived no benefit from it. It deserves a fair trial. *In Purulent Ophthalmia*, it is favourably reported of by Dr. De Condé.¶ He found it especially useful in *Ramollissement of the Cornea.*

1823. *In Phthisis*, there is no medicine of such general efficacy as Cod Liver Oil. Without adverting to the opinions of different eminent authorities, all of which are more or less favourable as to its value, it will be sufficient to quote the following statistical statement of Dr. C. B. Williams,** the result of his experience in its use:—Of 234 cases of which he preserved notes, there were 9 in which the Oil disagreed; 19 in which it appeared to do no good; and 206 in which its use was followed by marked and unequivocal improvement. Of the 206 patients,

* Med. Times, Dec. 30, 1848.
† Op. cit.
‡ Med. Gaz., Aug. 22, 1851.
§ Gaz. Méd. de Paris, 1837, p. 503.
‖ Pathology of the Eye, p. 298.
¶ Ann. d'Oculistique, 1858, vol. xl.
** Lond. Journ. of Med., Jan. 1849.

62 had cavities in the lungs: all these improved materially under the use of the Oil. In 34, the improvement continued; in 11, it was only temporary; and in 17, the patients were lost sight of. In 100 patients, the tubercles had commenced to soften, but actual cavities had not formed; and both physical and general symptoms materially and rapidly changed for the better. The process of softening seemed arrested, as the moist rhonchi ceased, the dulness more or less disappeared, and, at last, vesicular breath-sound returned, and no physical signs whatever remained, excepting, perhaps, tubular expiration. Coincidently with these changes, the constitutional symptoms disappeared. In the remaining 44 patients, the disease was in the early stage, and the results were no less satisfactory. A perusal of the above statement will show that, out of 234 cases, 206 materially improved under the use of Cod Liver Oil; and that, even after cavities in the lungs had formed, more or less benefit resulted from its use. He advises it in doses of a tea-spoonful, gradually increased to a table-spoonful, thrice daily, in infusion of orange-peel. He concludes his valuable report by observing, that pure fresh oil from the liver of the cod is more beneficial in the treatment of pulmonary consumption than any agent, medicinal, dietetic, or regimenal, that has yet been employed. Powerful evidence in favour of its use is also adduced by Dr. John Hutchinson* and Dr. Walshe.† One of the most remarkable effects of Cod Liver Oil is its power of increasing the weight. This is more marked in some than in others. Dr. J. Hutchinson instances the following examples;—In one instance, 41 lbs. were gained in 16 weeks; in another, 19½ lbs. were gained in 28 days, and 10 lbs. in the succeeding 10 days; and in another case, 29 lbs. were added to the patient's weight in 31 days. Amelioration did not invariably follow an increase of weight, though the exceptions were rare. In other cases, where amelioration was still more considerable, and the progress of the disease appeared to be stayed, relapse occurred, and was followed by a rapid progress to a fatal issue. An aggravation of the symptoms, and a diminution of weight, were almost invariably coincidences. In a few cases, the symptoms improved, though the weight remained stationary, or even became slightly diminished. It is only natural to inquire in what manner Cod Liver Oil thus proves beneficial. The question cannot be answered with certainty; but it is probable that it acts by restoring a normal condition of the blood. This will appear evident from the following table;—

* Med. Times, Jan. 4, 1851. † Diseases of the Lungs, 1851.

	Blood in health (Simon).	Phthisis (Simon).	Phthisis (Simon).	Phthisis, after taking Cod Liver Oil for a long period. (Simon.)
Water	791·000	807·500	825·200	750·000
Solids	208·000	192·500	174·800	250·000
Fibrine	2·011	4·600	6·500	a trace.
Globulin	112·346	71·230	61·110	94·500
Hæmatin		3·110	2·690	2·750
Albumen	75·590	98·360	90·350	131·000
Fatty matters	1·978	2·350	4·200	3·750
Extractives and Salts	14·174	9·350	8·000	15·250

In some cases Ozonized Cod Liver Oil appears especially indicated with the view of reducing the frequency of the pulse (*ante*). It has been suggested that the explanation of the remarkable effect of Ozonized Oil in Phthisis may be found in the greater affinity which phthisical blood has with oxygen—an affinity which it also preserves when oxygen is in the allotropic form of Ozone.

1824. *In Tabes Mesenterica*, it has been employed with great advantage. Under its use, the patient rapidly gains strength and flesh, the appetite returns, the tumefied belly becomes reduced, and a perseverance in this remedy is followed by a mitigation or removal of all the symptoms; the stools lose their clayey colour, and become bilious and healthy. Dr. Bennett* observes, that in no disease, with the exception of Rachitis, are the good effects of the Oil so well established as in this. In these cases, indeed, it is often very striking in its operation, curing the disease when every other remedy has failed. It should not only be given internally, but used as a liniment to the abdomen.

1825. *In Rachitis*, Dr. Bennett considers it the most efficacious of all remedies. M. Trousseau† relates numerous cases in which it proved successful. He states that he generally found improvement at the end of eight or ten days, and that, in the majority of instances, a cure was effected in six weeks. He gave it in doses of f℥ss.—f℥iij. daily, mixed with sugar or syrup. Klencke‡ also employed it successfully in three cases.

1826. *In Acute and Chronic Hydrocephalus*, Cod Liver Oil has been employed with a considerable degree of success. When these affections depend upon the existence or development of the

* Op. cit., p. 125.
† Journ. de Méd., March 1845.
‡ Op. cit.

scrofulous diathesis, or on derangement of the assimilating process, the Oil may be given with every prospect of success. Dr. Klencke* relates two interesting cases of Acute Hydrocephalus cured by its means. *In Epilepsy*, Dr. Anstie† employed Cod Liver Oil in twelve cases; of these three were complete failures, three improved, and in the remaining six "the fits have entirely ceased, and, so far as can be seen, the disease has been cured." This is very encouraging. The remedy requires to be persevered in for a long time. It is well worthy of further trials in cachectic cases. Other cases of *Chorea*, *Paralysis Agitans*, and *Mercurial Tremors* treated with this Oil are recorded by the same author,‡ and he states that in all these cases, as well as in Epilepsy, it has appeared to him more constantly useful than any other medicine.

1827. *In Chronic Rheumatism*, Cod Liver Oil was employed by Dr. Percival,§ in 1771; and on the Continent has long held a high reputation. It appears to be a remedy of great power and efficacy, and is chiefly useful where the constitution is debilitated, and the assimilating functions are deranged. M. Taufliebǁ relates two cases, in both of which the disease had existed many years; the patients were bed-ridden and quite helpless; medicines of various kinds had formerly been administered, but without effect. Cod Liver Oil was given, and after persevering in its use for five or six months, the patients were enabled to walk without assistance, and were eventually cured. It was employed externally and internally; frictions with the Oil to the affected limbs being used daily. *In Neuralgia*, Cod Liver Oil occasionally affords remarkable relief. Its *modus operandi* in these cases is obscure. Dr. Durant¶ cites several severe cases which yielded to its use after the ordinary means had failed.

1828. *In Rheumatic Ophthalmia*, it has also proved effectual. Cases successfully treated by it are related by Graefe and Ammon.**

1829. *In Atrophy, whether connected with Rheumatism or Scrofula, or mal-assimilation of Food*, Cod Liver Oil has proved signally beneficial. *In Gaol Cachexia*, or in that cachectic state which occurs in those who have been long shut up in close ill-ventilated prisons, it is strongly recommended by Mr. C. Rose.††

1830. *Laryngismus Stridulus*. To correct the faulty constitution, or to give a healthy impulse to the vegetative forces, the most sure means of diminishing that excessive nervous irritability which is of itself sufficient to induce spasm, Dr. Merei‡‡ states, that no remedy can bear comparison with Cod Liver Oil.

* Op. cit.
† Med. Times and Gaz., April 5, 1862.
‡ Ibid., March 28, 1863.
§ Works, Lit., Moral, and Med., vol. iv. p. 354.
ǁ Gaz. Méd., Nov. 1839.
¶ Assoc. Med. Journ., Oct. 6, 1855.
** Ophthalmic Journ., 1832.
†† Prov. Journ., Nov. 27, 1850.
‡‡ Edin. Monthly Journ., April 1850.

To a child of from two to four months old, he gives ʒj.—ʒij.; to one of six months, ʒiv.—ʒvj. or more. If it cause diarrhœa, it may be combined with Dover's Powder. When it disagrees, fʒss.—fʒj. should be rubbed daily on the spine.

1831. *In Diabetes*, Dr. Theophilus Thompson* states that he is strongly impressed with the value of this remedy, and that the benefit derived from it, in many respects, is often remarkable. He mentions a case in which Creosote and other remedies had been previously administered with little advantage, in which he employed it with benefit. At the time he first saw the patient, the quantity of urine passed in twenty-four hours was ten pints. The following table will show the progress under the Cod Liver Oil treatment :—

Dates.	Remedies.	Urine.	
		Quantity.	Specific Gravity.
1848.			
April 1	Cod Liver Oil, two drachms, three times a day	Ten pints	
,, 13	Ditto ditto	Six pints	
,, 20	Ditto ditto	Four pints	1·040
,, 17	Ditto four times daily..	Six pints	1·042
May 4	Ditto five times daily...	Three pints	1·042
,, 11	Ditto ditto	Three pints	1·037
,, 18	Ditto ditto	Two pints and a quarter	1·020

The patient subsequently went under other care, and a relapse ensued; the Oil was resumed after nine months with temporary advantage; but she ultimately sank under the disease. It is, however, a remedy which deserves an extended and fair trial.

1832. *In Anæmic states, and in Neuralgia and Sciatica associated with Anæmia*, Dr. Thompson† states that the Oil has been productive of the most satisfactory results. Whenever arterial or venous murmurs indicate such a condition, a rapid improvement may be expected to follow the administration of the Oil, even without the assistance of ferruginous medicines.

1833. *In Lupus*, the Oil has proved effectual in the practice of Dr. Begbie.‡ He draws the following conclusions :—1, that the constitutional treatment of Lupus by Cod Liver Oil is eminently useful and successful; 2, that, when the constitution of the patient is strongly affected with the syphilitic taint, the exhibition of small doses of Mercury or Iodine, in conjunction

* Lancet, Sept. 13, 1851.
† Ibid.
‡ Lancet, May 3, 1851.

with the Oil, will probably be found more successful than when the Oil is given alone. It is chiefly useful in *Lupus Exedens*. In *Psoriasis*, *Acne*, and many other chronic Skin Diseases, it is a valuable adjuvant to the arsenical and other modes of treatment.

1834. MOSCHUS. Musk. A peculiar secretion found in the præputial follicles of Moschus Moschiferus, the Musk Deer, an animal belonging to the order Ruminantia, of Cuvier. It is an inhabitant of the mountains of Thibet, and other parts of Central and Northern Asia. The dried inspissated secretion (Musk) is imported from China.

Med. Prop. and Action. Stimulant and anti-spasmodic in doses of gr. vj.—gr. lx., repeated every six or eight hours. It may be given in the form of bolus, emulsion, or Tincture (gr. cxx. ad. Spt. Rect. ℥j.). In large doses it is narcotic, and by Eastern nations is regarded as an aphrodisiac. Taken internally, it causes a sensation of warmth in the stomach, which gradually extends over the whole body: it increases the action of the heart and arterial system, and augments the secretion of urine and perspiration, to both of which it communicates its odorous principle. This has also been detected in the blood, and after death in the solids of the body. Cullen regarded it as the most powerful anti-spasmodic in the Materia Medica, and, when obtained pure, it is doubtless a remedy of great efficacy; but its high price causes it to be so extensively adulterated, that as it is met with in commerce, it can rarely be employed with the certainty of obtaining a proper and uniform effect.

Dose, gr. v.—gr. lx.

Incompatibles with a watery infusion. Corrosive Sublimate, Sulphate of Iron, Nitrates of Silver and Mercury, some other acidulous salts, and Infusion of Cinchona.

1835. *Therapeutic Uses. Spasmodic Diseases. In purely Spasmodic or Nervous Asthma*, Musk is often productive of benefit. The average dose is from 10 to 15 grains, but this must be regulated by the severity of the attack. Dr. Ahrensen* states that he applied Musk endermically in this disease with decided benefit. From gr. vj. to xv. were used at each application.

1836. *In Epilepsy*, Musk is occasionally beneficial. Dr. A. T. Thompson† states that he can bear testimony to its powerful influence in diminishing the violence of the paroxysms of idiopathic Epilepsy, and in greatly lengthening the intervals, when the dose is carried to the extent of ℥j. every eight hours. He prefers giving it in the form of a bolus.

1837. *In Chorea*, it has been used occasionally with benefit, but it most frequently fails in producing any good effects. Cases successfully treated with it are recorded by Dr. Powell.‡

1838. *In Hooping-Cough*, Musk has been long and successfully employed by the Russian physicians. Sir George Lefevre§ states that, after the febrile stage has subsided, it seems to exercise a

* Essay on the Endermic Method.
† Cyc. Pract. Med., vol. i. p. 102.
‡ Med. Trans., vol. v.
§ An Apology for the Nerves, p. 178.

specific influence; he adds, "A grain of Musk, three or four times a day, will in general arrest the most convulsive species of coughing in a few days."

1839. *In Tetanus*, Musk has been employed with reputed benefit by Fournier, Pescay,* and others; but it failed in the hands of Sir J. Macgrigor;† and Mr. S. Cooper‡ states that 150 grains were given to a girl thirteen years old, affected with incipient Tetanus, with no salutary effect.

1840. *In Infantile Convulsions* occurring during dentition, where great irritability of the brain exists without plethora, and where the exciting cause, if possible, has been removed, and the convulsions still continue, anti-spasmodics are indicated; and Musk (gr. ij.—v.), in the form of enema, often proves of the highest service. Assafœtida is a good substitute. *In Puerperal Convulsions*, Mr. Michell§ strongly advocates Musk, given in doses of from ℈j.—℈ij.

1841. *In Hysteria*, Musk is a valuable remedy, in doses of gr. x.—xv. thrice daily. Dr. Conolly,‖ who speaks highly of its efficacy, states that he found it particularly useful when the surface was pale and the pulse languid. *In Nervous Affections*, especially when arising from uterine derangement, it also proves highly serviceable.

1842. *Other Diseases. In Typhus and Typhoid Fevers*, Musk may often be given with decided advantage. Prof. Huss,¶ of Stockholm, gives the following indications for its use:—"When the patient," he observes, "lies constantly on his back; when he keeps muttering or talking to himself; when he is constantly picking the bed-clothes; when the muscular twitchings, subsultus tendinum, or more violent muscular action, is present; when, at the same time, the first sound of the heart is inaudible and the pulse thready; Musk, in doses of gr. v. with gr. j. of Camphor, may be given every two hours, and may be relied on with the greatest confidence." As the patient progresses to health, the intervals between the doses should be lengthened.

1843. When *Pneumonia* assumes a typhoid character, particularly if it is attended with delirium, Musk is stated by M. Recamier to operate almost as a specific. He gave it in doses of gr. xxiv.—xxx. daily. Cases in which unequivocal benefit was obtained are also related by Dr. Roche.**

1844. *In Retrocedent Gout*, Musk, in large doses, is often productive of benefit. Cullen†† states that, in many instances,

* Dict. de Science Méd., Paris, 1821, vol. lv.
† Med.-Chir. Trans., vol. vi. p. 458.
‡ Surg. Dict., Tetanus.
§ On Difficult Parturition, &c., 8vo. 1828.
‖ Cyc. Pract. Med., art. Hysteria.
¶ Dub. Journ., Sept. 1845.
** Med.-Chir. Rev., vol. lv. p. 193.
†† Mat. Med., vol. ii. p. 281.

he has seen large doses of Musk afford immediate and complete relief.

1845. *In Sleeplessness, occurring in nervous and irritable subjects, in Hypochondriacs and hysterical Females*, Dr. Graves* states that Musk, in doses of gr. j. every two hours, often proves eminently successful, even when opiates fail. It may be given with Assafœtida or alone.

1846. MUCUNA (DOLICHOS) PRURIENS. Cowhage or Cowitch. *Nat. Ord.* Leguminosæ. *Linn. Syst.* Diadelphia Decandria. *Hab.* West Indies. A closely allied species (Mucuna Prurita) is found in the East Indies, the Tenasserim Provinces, &c..

Med. Prop. and Action. The setæ, or hairs from the outside of the pod (*off.*), are anthelmintic. Their action is purely mechanical, as is shown by the fact, that in infusion or tincture they are perfectly inert. Externally, Cowhage has been used as a local stimulant.

1847. *Therapeutic Uses. As a remedy against A. Lumbricoides or Round Worm*, Cowhage has enjoyed great repute. Its action is mechanical: the setæ are supposed to wound and irritate the worms, obliging them to leave their hold on the lining coat of the intestines. The setæ are to be made into an electuary with honey or molasses, and of this one or more teaspoonfuls should be taken for three or four successive mornings. This should be followed by a brisk purgative. The pods should be dipped into honey before being scraped, as if the setæ prick the hands they cause intense itching. It is rarely employed by British practitioners.

1848. *In Paralysis*, the setæ have been employed as a local stimulant by Graefe and others. Their position on the affected limb is to be maintained by a bandage. They create some cutaneous inflammation, and require frequent renewal.

1849. MUSA PARADISIACA. The Plantain Tree. *Nat. Ord.* Musaceæ. *Linn. Syst.* Pentandria Monogynia. The fruit of this tree, which abounds in most tropical countries, is an invaluable article of food; containing from 60 to 68 per cent. of starch, meal, &c. It is slightly laxative.

Medical Uses. The leaves of the Plantain are highly valuable as *a substitute for Spermaceti Ointment in dressing blisters.* I have seen some hundreds of cases in which they have been thus employed, and have never observed any ill consequences arise from their use; on the contrary, the blistered surfaces have healed rapidly and healthily in an average of about five days. For the first two days, the upper smooth side should be placed next to the skin, and subsequently the under side, until the surface has healed. They are in common use in the native regiments in India.

* Clin. Lect., vol. ii. p. 535.

1850. MYLABRIS CICHORII. (Telini, *Hind.*) A Coleopterous Insect allied to Cantharis Vesicatoria. It is found in many parts of the East, and in the Indian Peninsula.

Med. Prop. and Action. A powerful rubefacient and vesicant. As an external application, it is a good substitute for Cantharides, but contains a larger proportion of Cantharidine, and is consequently more powerful in its action. If, however, it be used of a proper strength, it is perfectly safe, is speedy in its action, and renders the medical man in India independent of the European article, at least as an external application. For internal use, it should not be substituted for the Tincture of Cantharides, as the strength and operation of the latter is well ascertained and uniform, which is not the case with the Mylabris: indeed, it is noted in the Beng. Pharm. as "a very dangerous internal remedy." Externally, it may be applied most advantageously in Tincture (gr. clxxx., Proof Spirit Oij.), or in acetous solution (oz. ij., Acetic Acid Oj.). The latter I have used in a great number of cases, with excellent effect; the fluid should be rubbed on the skin with a feather, and dressed with a light poultice, some simple cerate, or plantain leaves.

Therapeutic Uses. See BLISTERS, part ii.

1851. MYRISTICA OFFICINALIS. M. Fragrans. The Nutmeg Tree. *Nat. Ord.* Myristicaceæ. *Linn. Syst.* Diœcia Monadelphia. *Hab.* The Moluccas, Sumatra, East and West Indies.

Med. Prop. and Action. The kernel of the seed (the Nutmeg of commerce), its lanceolate envelope (mace), with the distilled and expressed oils (*Ol. Myristicæ* and *Adeps Myristicæ*), obtained from them, are the only parts employed medicinally. Nutmegs are stimulant and carminative, and, in large doses, are reported to be narcotic. Bontius* adduces several instances in which Nutmegs caused giddiness, delirium, stupor, and much cerebral and nervous disturbance. Similar cases are mentioned by Cullen and Pereira. Nutmegs and mace are much used as condiments, and are supposed to assist the digestive process.

Offic. Prep. Of Nutmeg:—1. Pulvis Aromaticus. (See CINNAMOMUM.)
2. Tinctura Lavandulæ Composita. (See LAVANDULA.)
Of the Concrete Oil (obtained by means of expression and heat from Nutmegs) (Adeps Myristicæ):—Emplastrum Picis. (See PIX BURGUNDICA.)
Of the Volatile Oil (distilled in England from the Nutmeg) (Oleum Myristicæ):—1. Spiritus Ammoniæ Aromaticus. (See AMMON. SP. AROMAT.)
2. Spiritus Myristicæ (Volatile Oil of Nutmeg fl. oz. j.; Rectified Spirit fl. oz. ix.). Dose, ♏x.—♏lx.

Dose of Nutmeg or of Mace, gr. x.—gr. xx.; of Oleum Myristicæ, ♏j.—v.

Contra-Indications. 1, all acute sthenic febrile and inflammatory states; 2, plethora, with a determination of blood to the head.

1852. *Therapeutic Uses.* *In Asthenic Diarrhœa*, Nutmeg may be given with advantage. Dr. Pereira states that he has frequently employed it in mild cases as a substitute for Opium; and advises warm brandy and water as a vehicle, unless the spirit is contra-indicated.

1853. *In Flatulence and Flatulent Colic*, a few drops of Ol. Myrist. (gutt. ij.—v.) afford relief, or a small portion of Nutmeg may be given in warm brandy and water.

1854. *In Toothache*, a drop or two of Ol. Myrist. introduced

* Diseases of the East Indies, p. 194.

into the hollow of a carious tooth, gives immediate ease in some cases.

1855. *In Chronic Rheumatism, Paralysis, Sprains, &c.*, the expressed Oil of Nutmegs, diluted with Liniment. Sapon., forms a very useful stimulating embrocation.

1856. MYRRHA. Myrrh. The gum-resinous exudation from the stem of Balsamodendron (Protium) Myrrha. *Nat. Ord.* Terebinthaceæ. *Linn. Syst.* Octandria Monogynia. *Source*, Abyssinia and Arabia Felix.

Med. Prop. and Action. Stimulant, expectorant, and emmenagogue, in doses of gr. x.—gr. xx. In these doses it acts as a stimulant of the digestive organs, and improves the appetite. In doses of ʒss., Cullen found it cause a burning sensation in the stomach, increased arterial excitement, and profuse diaphoresis, and, like other medicines of the same class, it exercised a great influence on the urinary passages. It also appears to possess the power of diminishing profuse discharges from mucous membranes, particularly from the pulmonary and genito-urinary organs. Its operation as an expectorant is greatly increased by combining it with Squills, &c., and as an emmenagogue, by the addition of Aloes or Iron. The Tincture is of great value as a gargle, &c., when diluted with water, or some astringent infusion.

Offic. Prep. 1. Decoctum Aloes Compositum. (See ALOES.)
2. Mistura Ferri Composita. (See FERRI MISTURA COMPOSITA.)
3. Pilula Aloes et Myrrhæ. (See ALOES.)
4. Pilula Assafœtidæ Composita. (See ASSAFŒTIDA.)
5. Pilula Rhei Composita. (See RHEUM.)
6. Tinctura Myrrhæ (Myrrh in coarse powder oz. iiss. ; Rectified Spirit Oj. Prepared by maceration and percolation). Dose, mxxx.—fl. drm. j.

Dose of Myrrh, gr. x.—gr. xx., or more.

It is contra-indicated in all acute sthenic inflammatory states.

1857. *Therapeutic Uses. In Amenorrhœa*, Myrrh has long been held in high esteem. By itself, its power is very limited; but, in combination with Iron and Aloes, it appears to impart to those medicines an activity which they do not possess when given singly. It is an important constituent in Mist. Ferri Co., and Pil. Ferri Co. (Ph. L.). *In Chlorosis and Leucorrhœa*, it appears to exercise a beneficial influence.

1858. *In Bronchitis* of long standing, Dr. Williams states* that he has found Myrrh a very valuable medicine, particularly after a course of expectorants, when its grateful and tonic effects upon the stomach give it an additional recommendation. It is inadmissible when any fever or irritability is present.

1859. *In the Asthma of old Persons*, Myrrh has been found very useful in arresting the exhaustion consequent on profuse expectoration.

1860. *In Phthisis*, it was formerly held in high esteem, but, it appears, undeservedly so. In the latter stages, however, when there is great debility, with profuse expectoration, its tonic and

* Cyc. Pract. Med., vol. i. p. 322.

stimulant properties entitle it to a fair trial. It is an important constituent in Griffith's celebrated Anti-hectic Mixture (Mist. Ferri Co.).

1861. *In the Cough attendant on Pregnancy*, Dr. A. T. Thompson * states that Myrrh, in combination with the Oxide of Zinc, has been found extremely useful.

1862. *In Convalescence from Fevers*, Dr. O'Shaughnessy † states that he has employed it with excellent effect.

1863. *In Sponginess of the Gums, Ulcerated Sore Throat, Ptyalism, &c.*, a gargle or wash, composed of fl. drs. ij.—fl. drs. iv. of the Tincture in fl. oz. iv. of Water or Infusion of Cinchona, is highly serviceable.

1864. *To foul and indolent Ulcers*, the diluted tincture has been used as a stimulating wash.

1865. NAPHTHA (WOOD). Spiritus Pyroxylicus Rectificatus. Rectified Pyroxylic Spirit. Wood Spirit. Hydrated Oxide of Methyle (C_2H_3O, HO) with about 10 per cent. of Water. A product of the destructive distillation of Wood. Sp. Gr. 0·841 to 0.846.

Med. Prop. and Action. Stimulant. It is said also to be narcotic. It has been used to check vomiting and cough in various atonic conditions.

Dose, ℥v.—℥xxx.

1866. *Therapeutic Uses. In Phthisis*, it has been strongly advocated by Dr. J. Hastings ‡ and Dr. Hocken, § who state that they were led to its use by observing, that tubercles obtained from patients who had died of Phthisis were completely soluble in it. The dose advised was ℥xv., gradually increased till ℥xl.—℥l. were taken, four times a day. The statements of these gentlemen were received with much doubt by the profession. Dr. Theophilus Thompson ‖ has investigated the subject. He states, that when the bronchial tubes are affected, and there is much expectoration, Naphtha seems, to a certain extent, to lessen the secretion, and the night-perspiration;—but that, in all other stages, particularly in the third, it is productive of positive mischief. Excepting the above, it has no single beneficial effect on the disease.

1867. NAPHTHALINE, or NAPTHALINE. $C_{20}H_8$. A white crystalline substance. A product of the distillation of Coal Tar.

Med. Prop. and Action. Stimulant, expectorant. It is also considered anthelmintic. Externally, it is used in the form of ointment (1 part of Naphtaline to 30 of Lard).

* Dispensatory, p. 463.

† Beng. Dispens., p. 286.

On the Value of Naphtha in Tubercular Phthisis, Lond. 8vo, 1844.

§ Consumption successfully treated with Naphtha, Lond. 8vo, 1845.

‖ Med. Times, vol. xvii. 1848.

Dose, gr. viij.—gr. xxx. in emulsion or syrup.

1868. *Therapeutic Uses. In Lepra, Psoriasis, and other obstinate Diseases of the Skin*, it has been used successfully by M. Emery* and other Parisian surgeons. The ointment (*ut supra*) is spread upon linen and applied to the parts.

1869. NARCOTINA. Narcotine. $C_{46}H_{25}NO_{14}$. Anarcotine (Beng. Ph.), a solid, white, inodorous, insipid, neutral, crystallizable principle, obtained from Opium. Insoluble in Water and alkalies; soluble in Alcohol, Ether, and Acids. With the latter it forms salts.

Med. Prop. and Action. Tonic, febrifuge, anti-periodic, and diaphoretic. It is entirely devoid of all narcotic properties. Dr. Garrod† states that he has given it as a tonic and anti-periodic in half-drachm doses, without the production of any narcotic symptoms.

Dose, as a tonic, gr. j.—gr. iij. thrice daily; as a febrifuge and anti-periodic, gr. iij.—gr. v., or more. In doses of gr. xx. it has a diaphoretic action.

1870. *Therapeutic Uses. Intermittent Fevers.* Dr. O'Shaughnessy‡ states, that his experiments, repeated by many medical officers in all parts of India, have led to the conclusion, that Narcotine is, after Quinine, the most powerful febrifuge we possess. In doses of gr. iij.—v., dissolved in water, and acidulated by Hydrochloric or Sulphuric Acid, repeated thrice daily, it will prevent the return of ague in all ordinary cases. It has frequently succeeded when Quinine has previously failed. *In Ague complicated with Dysentery*, Narcotine is stated to be decidedly superior to Quinine, as it does not aggravate the local inflammation; but, on the contrary, seems to allay the pain and tenesmus. Dr. O'Shaughnessy adduces the testimony of many medical officers in its favour. Its value as an anti-periodic is strongly advocated also by Dr. Gardeu,§ of the Bengal Medical Service, who considers the only objection to it is its tendency to produce constipation, to obviate which purgatives are necessary.

1871. *In Remittent Fever*, Dr. O'Shaughnessy‖ considers its powers not so well established, and recommends the employment of Quinine, unless the latter is either not available, or produces intolerable head symptoms, under which circumstances Narcotine may be boldly had recourse to.

1872. *In Debility after Fevers, &c.*, Narcotine is a valuable tonic in doses of gr. j. thrice daily. Dr. O'Shaughnessy states that he found it especially valuable in the convalescence from parturition, and in the debility which so often follows nursing in India.

* Bull. de Thérap., vol. xxxvi. 1849.

† Essentials of Mat. Med. and Therap., p. 161.

‡ Beng. Pharm., p. 261.

§ Lancet, Jan. 11, 1862.

‖ Op. cit.

1873. NECTANDRA RODIÆI. The Bebeeru or Greenheart Tree. (Sipeeri, *Dutch.*) *Nat. Ord.* Lauraceæ. *Linn. Syst.* Decandria Monogynia. *Hab.* British Guiana.

Med. Prop. and Action. The bark is tonic, anti-periodic, and febrifuge. Its activity depends upon a vegetable alkaloid, *Beberia.* It also contains a small portion of Tannin, which renders it somewhat astringent.

Therapeutic Uses. Similar to Bebeerine. (See BEBERIA.)

NEPHRODIUM. See art. FILIX.

1874. NICOTIANA TABACUM. Tabacum. Virginian Tobacco. *Nat. Ord.* Solanaceæ. *Linn. Syst.* Pentandria Monogynia. *Hab.* Tropical America; now cultivated in most parts of the world.

Med. Prop. and Action. The dried leaves (*off.*) are sedative and anti-spasmodic; also purgative, emetic, and diuretic in a minor degree. When locally applied, it appears to be stimulant; thus, when it is used in the form of snuff, it causes violent sneezing, and, when chewed, greatly increases the flow of saliva. When taken in small doses, by those unaccustomed to its use, it causes nausea, vomiting, vertigo, and a great depression of the vital powers; in larger doses, these symptoms increase in intensity; there is great prostration; a low, weak, trembling pulse; cold, clammy perspiration, obscurity of vision, and a tendency to faint. In extreme cases, convulsions, paralysis, and coma precede death. These symptoms evidence themselves whether Tobacco has been taken by mouth, or in the form of enema, or even in some cases when the leaves have been applied to a large abraded surface. In its operation and effects it is closely allied to Digitalis. Its activity depends upon a liquid alkaloid, *Nicotina* ($C_{20}H_{14}N_2$), and upon a concrete volatile oil, *Nicotianin.* Nicotina is an energetic poison, almost equalling Hydrocyanic Acid in potency. Nicotianin also possesses poisonous properties. According to the experiments of Sir B. Brodie, an aqueous infusion of Tobacco causes paralysis of the heart, through the medium of the nerves; whilst the empyreumatic oil of Tobacco was not found to produce this effect: thus, one drop of the oil applied to the tongue of a cat caused convulsions and death in two minutes; and on opening the body immediately afterwards, the heart's action was unaffected. Tobacco is a remedy which should be used with great caution, as it causes such perfect prostration that the vital powers have not sufficient strength left to recover themselves, and a fatal termination follows. Fatal results from Tobacco enemas are recorded by Sir A. Cooper, Sir C. Bell, Dr. Copland, and others. Gr. xxx. of the leaves in infusion is the smallest quantity which has proved fatal. Chloroform inhalation has almost entirely superseded the use of Tobacco enemata in cases of Strangulated Hernia. Smoking Tobacco and Snuff-taking, when first commenced, cause nausea, vomiting, &c. Their moderate use does not appear to be injurious, but excessive indulgence in them induces dyspepsia and a cachectic state of the body. Contrary to the opinion of some writers, I am inclined to believe, from many circumstances, that smoking Tobacco is, to a certain extent, a preventive of fever arising from malaria in tropical countries.

Offic. Prep. Enema Tabaci (Leaf Tobacco grs. xx.; Boiling Water fl. oz. viij. Infuse for half-an-hour, and strain).

Dose. Tobacco is not a remedy fitted for internal administration, on account of the great depression it produces: gr. xv.—xx. in infusion is the quantity which it is safe to administer as an enema.

1875. *Therapeutic Uses.* *In Dropsical Affections,* Tobacco was

strongly recommended by Dr. Fowler.* He employed an infusion (Leaves ʒj., Boiling Water Oj. ; macerate one hour ; add Rectified Spirit of Wine fʒij.), in doses of gutt. xxx., three times a day, at the commencement ; and gradually increased the dose until it augmented the urine and produced sickness, when it was discontinued. Dr. Darwell † states that, thus used, it appeared to him particularly useful ; more so, when the Dropsy arose from disease of the liver and spleen, than from the heart and lungs. He adds, that he never saw any ill effects resulting from its use. It is, notwithstanding, a dangerous remedy, and inferior to many others of a safer character.

1876. *In Ileus, Dry Belly-ache*, Tobacco enemas have the sanction of Sydenham, Heberden, and other high authorities. Dr. Abercrombie ‡ considers them of most general utility in all the forms and stages of Ileus. He observes, "It should be given at first with much caution ; perhaps not more than 15 grains, infused for ten minutes in fʒvj. of boiling water. After an interval of half an hour, if no effect be produced, it may be repeated in the quantity of 20 grains ; and so on, until such effects are produced in slight giddiness and muscular relaxation, as show that its peculiar action is taking place in the system. It may be repeated at intervals of one or two hours, a great many times, if the case do not yield speedily. With the precautions now mentioned," he adds, "I have never seen any unpleasant effect result from the free use of this powerful remedy." From the fatal effects which have resulted occasionally from Tobacco enemas, this treatment has never come into general use. *In Colica Pictonum*, the same treatment has been advised. Dr. Graves proposes, as a substitute for the enema in the above cases, to apply to the abdomen compresses soaked in a strong decoction of Tobacco leaves. It is less speedy, but is stated to be equally efficacious.

1877. *In Strangulated Hernia*, Tobacco enemas were formerly much employed with a view of relaxing the muscular system, and facilitating the reduction of the hernia. It is an extremely uncertain and dangerous remedy, and should only be had recourse to when every other means have failed. Mr. Liston § remarks, "that the employment of the supposed remedy cannot be too strongly reprobated ; its effects are most severe and unmanageable ; the state of collapse is most complete and alarming ; and it is often difficult, if not impossible, to bring the patient out of it,—to procure reaction." "I have often," he adds, "seen it fail, and have witnessed the operation afterwards performed on the patients, who were at the time without pulsation, from whom

* Med. Reports on the Effects of Tobacco, &c., 1785.

† Cyc. Pract. Med., vol. i. p. 648.

‡ Pathology of the Intestinal Canal, p. 144.

§ Elements of Surgery, part iii. p. 31.

no blood flowed after the incisions, and who never rallied, but sunk rapidly." According to the experience of Velpeau, it succeeds once in twenty-five times.

1878. *In Tetanus*, Tobacco enemas have been advised and successfully employed by Drs. O'Beirne,* Anderson,† Earle,‡ Curling,§ and others; and although occasionally benefit, and even recovery, has resulted from their employment, yet they often fail to afford any amelioration of the symptoms. Such was the experience of Sir J. Macgrigor ‖ during the Peninsular war. On this point, Dr. Todd ¶ observes, that Tobacco is neither safe nor manageable; and adds, that he has seen more than one patient die, *cured of Tetanus*, under the use of this remedy. When employed, the strength should never exceed gr. xxx. of the leaves in Oss. of water; and great care is necessary to prevent too great an amount of depression by the administration of Ammonia, Brandy, and other stimulants. Dr. O'Reilly** has recorded a case of *Poisoning by Strychnine* which recovered under the use of Tobacco given in infusion: the total quantity taken in divided doses during twelve hours was ℥j. ʒij. A case of Tetanus recovered under the use of Nicotine is recorded by Mr. Tuffnell.†† Prof. Haughton,‡‡ of Dublin, has also recorded two cases of traumatic and one of idiopathic Tetanus treated by Nicotine. Two of these cases recovered. The alkaloid had the effect of relaxing the muscles, causing a cessation of delirium, and producing profuse sweating, which exhaled a strong odour of snuff. The dose given was gutt. ss. to gutt. $2\frac{1}{2}$ in sherry and water; the dose being repeated several times in the day. One patient who recovered took 44 drops or 26·4 grs. in eleven days. The other took in all 54 drops = $32\frac{1}{2}$ grs. The patient who died was moribund when he began the medicine. Prof. Haughton remarks that Nicotine should be employed, and not infusion of Tobacco leaves, as in the latter the properties of the alkaloid are masked by two or more vegetable oils, the operation of which on the nervous system is unknown. Dr. John Ogle,§§ of St. George's Hospital, has since recorded a case of Traumatic Tetanus in which the Nicotine treatment was unsuccessful. Mr. H. J. Tyrrell‖‖ has lately recommended the topical application of Tobacco in Tetanus. In *Traumatic Tetanus*, he applies a strong infusion of Cavendish Tobacco to the wound and surrounding parts, previously blistered. In the *Idiopathic form*, he recommends that the Tobacco should be applied to a blistered surface

* Dub. Hosp. Reports, vol. iii.
† Edin. Med.-Chir. Trans., vol. i. p. 187.
‡ Medico-Chir. Trans., vol. vi.
§ Treatise on Tetanus, 8vo, 1836.
‖ Medico-Chir. Trans., vol. vi.
¶ Clin. Lect., Med. Gaz., 1849, p. 766.
** Dub. Med. Press, June 23, 1858.
†† Ibid., Jan. 7, 1863.
‡‡ Dub. Quart. Journ., xxxiv. p. 172.
§§ Med. Times and Gaz., March 12, 1864.
‖‖ Med. Times and Gaz., Sept. 24, 1864.

over the spine. He has placed on record two cases successfully treated by this method.

1879. *In Spasmodic Asthma*, smoking Tobacco occasionally affords relief. In some, the ease it affords is remarkable; in others, it fails to produce any effect; whilst it sometimes appears to aggravate the symptoms. Experience in each individual case is the sole test of its utility.

1880. *In Retention of Urine from Spasm of the Neck of the Bladder*, a Tobacco enema is advised by Mr. Earle,* but it is greatly inferior to Opium.

1881. *In Dysentery*, Dr. O'Beirne † speaks highly of the efficacy of fomentations of infusion of Tobacco (¼ lb. of the leaves to Oviij.—Ox. of water) to the abdomen. Under their use, he states that the tormina abate, and the force of the circulation is reduced with less expenditure of general strength than when bleeding is alone employed.

1882. *In Peritonitis*, Tobacco enemas have been advised by De Haen, Fowler, Abercrombie, and others. Mr. Howship ‡ relates three cases successfully treated by the injection of Tobacco smoke. This treatment is now abandoned.

1883. *In Fevers*, Tobacco smoking has been advised as a preventive. It is universally regarded as such in Holland. Dr. M'Gregor § expresses his belief in its preventive power; a belief in which many medical men residing in the tropics fully coincide. Dr. M'Gregor adds, that the *sleeplessness of fever* will sometimes be most effectually removed by the application of a moistened Tobacco leaf to the shaven scalp.

1884. *In Rheumatic Pains of the Joints and Bones, in Gout, and in painful Nodes and Sprains*, the application of a moistened Tobacco leaf, or fomentation, has afforded a great amount of relief. I have repeatedly witnessed its efficacy.

1885. *Hæmorrhage from Leech-bites, &c.*, may be speedily arrested by applying a piece of Tobacco leaf over the bleeding surface.

1886. *In purulent Ophthalmia*, Dr. Vetch ‖ speaks highly of the benefit to be derived from a collyrium of infusion of Tobacco leaves (ʒij. ad Aq. fʒviij.). "It possesses," he says, "the valuable properties of acting as a powerful astringent, restraining the purulent discharge and diminishing the external swelling of the palpebræ, at the same time that its narcotic qualities often relieve the pain and the perpetual watchfulness, which the largest doses of Opium cannot subdue."

1887. *In Phymosis and Paraphymosis*, Bergius ¶ advises To-

* Op. cit.

† Trans. of Irish Coll. of Physicians, vol. iv. p. 386.

‡ Pract. Observations, &c., p. 19.

§ Med. Surg. Journ. of the N. W. Provinces, 1845.

‖ Account of the Ophthalmia, &c., of Egypt, p. 211.

¶ Mat. Med., vol. i. p. 222.

bacco fomentations as a means of relieving the pain, swelling, and constriction.

1888. *In Porrigo, Scabies, Tinea Capitis, and other Cutaneous Diseases*, Tobacco fomentations have been used as a local application; but they are inferior in efficacy and safety to many other means. They are useful in destroying *pediculi*.

NICOTINA. See NICOTIANA TABACUM.

1889. NITRIC ACID. Acidum Nitricum. Aqua Fortis. 3 HO, $2NO_5$. *Prep.* By the action of Sulphuric Acid on Nitrate of Potash. *Comp.* Dry Nitric Acid 80, Water 20, in 100 parts; or 2 Eq. of Dry Nitric Acid = 108, + 3 Eq. Water = 27 = 135. Sp. Gr. 1·5.

DILUTE NITRIC ACID. Acidum Nitricum Dilutum. Prepared by mixing 2 fl. oz. of Nitric Acid with 13 fl. oz. of Distilled Water. Sp. Gr. 1·101. Contains 15 per cent. of Dry Nitric Acid. The Dilute Acid of the Lond. Pharm. contained 12 per cent. of Dry Nitric Acid.

Med. Prop. and Action. Strong Nitric Acid is a powerful caustic and escharotic, communicating a permanent yellow stain to the cuticle. The dilute acid, in doses of ℥x.—xx., is antalkaline, tonic, alterative, and refrigerant. If continued for a long period, it causes salivation; it has also apparently a more direct action on the liver than the other acids, but it disagrees with the stomach sooner than Sulphuric Acid. It is an excellent alterative, after long courses of Mercury, renovating the strength, and improving the tone of the system in a remarkable manner. As it acts injuriously on the teeth, any medicine containing it should be sucked through a quill or glass tube, and the mouth should be rinsed out with an alkaline solution after each dose. As a fumigating and disinfecting agent, it is very valuable, though perhaps inferior to Chlorine; the vapour may be readily developed by pouring one part of Nitric Acid over one part of the Nitrate of Potash, placed on a heated sand-bath.

Offic. Prep. 1. Acidum Nitricum Dilutum. (See above.) Dose, ℥v.—℥xxx., freely diluted.

2. Acidum Nitro-Hydrochloricum Dilutum. (See NITRO-HYDROCHLORIC ACID.)

Dose of Strong Nitric Acid, ℥ss.—℥iij., freely diluted.

Incompatibles. Alkalies, their Carbonates and Acetates; most earths, and their Oxides; Sulphurets and Cyanurets; Sulphate of Iron, Charcoal, Sugar, Alcohol, Spirit, and volatile oils.

1890. *Therapeutic Uses. Calculous Disease. In the Alkaline and Phosphatic Diathesis*, Nitric Acid may be employed with advantage. Sir B. Brodie * speaks highly of its value. "In extreme cases," he observes, "you may give ℥xxx.—xl., or even more, of the strong acid, sufficiently diluted with syrup and water, in the course of the day." The effect of these large doses in correcting the alkaline quality of the urine is very remarkable. He also employed it as a direct solvent, by injecting into the

* On Diseases of the Urinary Organs, p. 218.

bladder a mixture containing one drop of the strong acid in fʒj. of water. From numerous experiments, he* came to the conclusion that a calculus, composed externally of the phosphates, may be acted on by this injection, so as to become gradually reduced in size, while it is still in the bladder of a living person. It is now rarely employed.

1891. *In Chronic Inflammation of the Bladder*, when the severity of the symptoms have abated, Sir B. Brodie† states that for many years he has employed weak injections of Nitric Acid. The strength employed at first is 1 minim of the strong, or 10 of the dilute acid, in fʒj. of distilled water; but afterwards the quantity of the acid may be doubled. It should never be employed if any active inflammatory symptoms are present, nor of a greater strength than the above; it should not be retained more than forty seconds, nor be repeated oftener than once every two days at first, and daily afterwards. It should always be discontinued if it give pain. With these precautions, he considers it a valuable remedy and free from danger.

1892. *Hæmorrhoids or Piles.* Dr. Houston, ‡ of Dublin, strongly recommends the application of strong Nitric Acid to bleeding piles, but particularly to that soft, red, strawberry-like elevation, which he names a vascular tumour of the rectum, and which the acid removes, by the production of a slough of its surface. The surface to be acted upon must be soft, and free from any coating of cuticle, such as is apt to form on it by persistent prolapsus. To ensure the full effect of the caustic, the parts should be dried, and cleared of all mucous and other adherent fluids. "Let the patient," observes Dr. Houston, "strain at the night chair, so as to bring the tumours fully into view, and while they are so down, let him lean over the back of a chair, so as fully to expose the parts. Let a piece of wood, cut in the shape of a spatula, be dipped in the acid, and then, with as much of the acid adhering to it as it will carry without dripping, let it be rubbed on the tumour to the extent required; the due effect of the acid on the part is shown by its changing it to a greyish white colour. The prolapsed parts should then be pushed back within the sphincter, the patient put to bed, and an opiate administered. The pain, which is sharp and burning at first, goes off in two or three hours. If the tumours be old and firm, a second or third application may be necessary." He details many cases illustrative of its efficacy and safety. Mr. Lee§ employed it with success in other forms of hæmorrhoidal tumours. He advises the use of the strongest acid, in order *rapidly* to destroy the vitality of the part. The surrounding parts should be

* Op. cit., p. 299.
† Dis. of Urinary Organs, p. 111.
‡ Dub. Journ. of Med. Sciences, vols. xxiii. and xxvi.
§ Lond. Journ. of Med., Jan. 1849.

carefully protected. Much valuable information on this remedy and its mode of application will be found in Mr. H. Smith's work on Hæmorrhoids (Lond. 1860).

1893. *In Syphilis*, the internal use of Nitric Acid was first advocated by Dr. Scott,* of Bombay, in 1796. On his recommendation it was employed by Kellie, Rollo, Cruickshank, Beddoes, Hammick, Ferriar, Albers, Holst, and others, in the primary form of the disease, and they all reported in the highest terms of its efficacy. Mr. Pearson, however, gave it a fair trial; his testimony was, on the whole, adverse to its employment; and in the hands of others it was also found to fail. It has consequently fallen into comparative disuse, at least in the primary form. *In Secondary or Constitutional Syphilis*, however, particularly in that met with in the tropics, it is a most valuable remedy. In old debilitated constitutions, in those who have been subjected to long mercurial courses, *in Syphilitic Rheumatism, and in Syphilitic Eruptions*, Nitric Acid may be given with every prospect of speedy relief and eventual cure. I have seen the greatest benefit result from its use, in doses of ♏x. thrice daily, in decoction of Sarsaparilla. Ulcers may, at the same time, be dressed with Liq. Plumb. Subacet. or other mild stimulants; all mercurial salts should be carefully avoided, and a light animal diet allowed. This treatment is highly spoken of by Dr. Graves. In syphilitic affections of the bone and periosteum, it is inferior in efficacy to the Iodide of Potassium. *To Chancres*, at their first appearance, the strong Nitric Acid is advised by Mr. Bransby Cooper, as the most effectual caustic to destroy and decompose their surface. All forms of Secondary Syphilis are benefited by the use of Nitric Acid baths (fl. oz. j.—fl. oz. ij. to each bath).

1894. *In Chronic Hepatitis*, when a scorbutic or strumous habit contra-indicates the use of Mercury, and when large quantities of that mineral have been previously taken without effecting a removal of the disease, the symptoms will frequently be ameliorated or subdued by dilute Nitric Acid, in doses of ♏vj.—x. in Decoct. Sarsæ. thrice daily. If persevered in, it will produce a slight soreness of the mouth, which may be taken as a sign that it has been carried to a sufficient extent. Sponging the body and the surface of the liver particularly, with dilute Nitro-hydrochloric Acid, may be advantageously employed at the same time. (See NITRO-HYDROCHLORIC ACID.)

1895. *In Cholera*, Nitric Acid, largely diluted with any demulcent vehicle, has occasionally been used with apparent benefit. Sir James Macgrigor† published a favourable report of its influence in the Cholera of India; and Mr. Hope‡ recommends it,

* Duncan's Annals, 1796, vol. i. pp. 373—383.

† Duncan's Annals for 1802.

‡ Edin. Med. and Surg. Journ. vol. xxvi. p. 41.

conjoined with Opium, in the Cholera of temperate climates. When largely diluted and sweetened, it may be used as an ordinary drink in this disease.

1896. *In Habitual Constipation*, Dr. Graves* states that he has occasionally derived remarkable benefit from the use of Nitric Acid, given in sufficient doses. He considers that it possesses the advantage of combining tonic with aperient qualities.

1897. *In Chronic Affections of the Spleen*, in addition to the employment of tonics and purgatives, Annesley recommends the internal use of Nitric Acid as advised in section 1894, together with the daily use of the Nitro-muriatic lotion over the region of the spleen and liver. Many chronic cases in old Indians are much benefited by this treatment.

1898. *In Dropsy and Dropsical Affections*, following upon repeated courses of Mercury, Mr. Carmichael† recommends the administration of ♏viij.—x. of dilute Nitric Acid combined with Digitalis.

1899. *In Diabetes*, Dr. Bardsley‡ observes that Nitric Acid, diluted with water (fʒiij. ad Aq. Oiij.), is generally productive of benefit, mitigating the thirst and heat, and diminishing the quantity of the urinary secretion. In the majority of cases, it may be taken with advantage; but it is inadmissible if diarrhœa be present.

1900. *In Puerperal Intestinal Irritation*, where diarrhœa is a prominent symptom, the latter may often be removed by a combination of Nitric Acid (♏x.) with a few drops of T. Opii. (Sir C. Locock.§)

1901. *In Chronic Rheumatism*, where the constitution has been debilitated by Mercury, or repeated attacks of Syphilis, dilute Nitric Acid (♏x.) in combination with Sarsaparilla and with Dover's Powder, at night, has been found productive of the best effects.

1902. *Cardialgia or Heartburn*, which resists the use of the fixed alkalies, is often curable by dilute Nitric Acid, in doses of ♏v. every four hours.

1903. *In Hospital Gangrene, and Phagedenic Ulcerations*, the local application of strong Nitric Acid was first advised by Mr. Wellbank,‖ who gives the following directions for its use:—Having thoroughly cleansed and dried the ulcer, the surrounding parts should be covered with a thick layer of lard or ointment, to prevent the acid coming in contact with them. A pledget of lint, fastened to the end of a stick, is to be saturated with the acid, and to be carefully pressed on every part of the

* Clin. Lect., vol. ii. p. 215.
† Essay on the Venereal Disease.
‡ Cyc. Pract. Med., vol. i. p. 548.
§ Lib. of Med., vol. i. p. 363.
‖ Med.-Chir. Trans., vol xi. p. 369.

ulcer, till it is converted into a firm dry mass. After the first pain, which is generally severe, has subsided, the previous sufferings will be greatly relieved. Cold-water dressings are to be applied. The eschar formed by the acid is to be removed in twenty-four hours, and a common stimulating ointment or lotion applied. Should the phagedenic character of the ulcer reappear, it will be necessary to repeat the application of the acid. This, without doubt, is the best and most certain treatment of phagedenic ulceration. The constitutional treatment must be regulated according to the state of the patient. Mercury in every form should be avoided. *To sloughing and ill-conditioned Ulcers*, Sir A. Cooper* advises Nitric Acid largely diluted (♏l.—lx. ad Aq. Oj.).

1904. *In Cancrum Oris*, the late Samuel Cooper† found the strong Nitric Acid most efficacious in the worst forms of this disease. The constitution must at the same time be supported, and Quinine administered.

1905. *In Impetigo*, the internal use of Nitric Acid (fʒss. in Oj. of a bland fluid) is strongly advised by Rayer.‡ "It seldom happens," he adds, "that this medicine is continued for a month or six weeks without accomplishing a cure." *In Lepra*, a similar mode of treatment is very favourably mentioned by Mr. E. Wilson.§

1906. *In Alopecia*, a serviceable liniment is made by adding, to a certain quantity of Olive Oil, as much Nitric Acid as will make it pungent, but not acrid.

1907. *In Porrigo, Scabies, and some obstinate Skin Diseases*, the liniment advised in the last section may be used with advantage.

1908. *In Caries, and in non-syphilitic Ulcers of the Legs*, when the latter are attended with a thin ichorous discharge, Dr. A. T. Thompson‖ states that he has derived great benefit from a wash composed of fʒij. of the diluted acid and Oj. of water.

1909. *Other Diseases. In Hooping Cough*, Nitric Acid is strongly advocated by Dr. Gibb.¶ The following is one of his formulæ:—℞ Acid. Nit. Dil. (Ph. L.) fʒxij., Tinct. Card. Co. fʒiij., Syrup. fʒiiiss., Aquæ fʒj., M. Dose, a dessert-spoonful every one or two hours. Other observers have also borne testimony to its value in Hooping Cough. *In Intermittents*, Dr. Hammond** corroborates the statements of Drs. Bailey and Mendenhall as to the anti-periodic powers of Nitric Acid in doses of gutt. x. properly diluted with water thrice daily. *Warts* are easily removed by cutting off the top, and touching them daily with Nitric Acid,

* Lectures on Surgery.
† Surg. Dict., p. 332.
‡ On Diseases of the Skin, p. 502.
§ On Diseases of the Skin, p. 280.
‖ Dispensatory, p. 847.
¶ Treatise on Hooping Cough, Lond. 1854.
** Ranking's Abstract, xxxvi. p. 42, 1862.

and removing from time to time the stratum of disorganized and hardened epiderma with the knife. (E. Wilson.*) *In Molluscum*, M. Emery employs Nitric Acid as a caustic.

1910. NITRO-HYDROCHLORIC ACID. Nitro-muriatic Acid. Acidum Nitro-hydrochloricum, seu Nitro-muriaticum. Aqua Regia. A mixture of one part of Nitric Acid and two parts of Hydrochloric Acid. It is distinguished from all other acids by its property of dissolving gold.

DILUTE NITRO-HYDROCHLORIC ACID. Acidum Nitro-Hydrochloricum Dilutum. Prepared by mixing 2 fl. oz. of Nitric Acid with 26 fl. oz. of Distilled Water and adding 4 fl. oz. of Hydrochloric Acid. Sp. Gr. 1·074.

Med. Prop. and Action. The strong acid is caustic and escharotic. The dilute acid, in doses of ♏v.—xv., properly diluted, is given internally as an alterative and tonic. Externally it is used largely diluted as a bath or stimulating wash. (See *Chronic Hepatitis, infra.*) As it is prejudicial to the teeth, the mouth should be washed out with an alkaline solution, after each dose of the medicine.

Dose of Acidum Nitro-Hydrochloricum Dilutum, ♏v.—♏xv.

1911. *Therapeutic Uses. Calculous Diseases. In the Oxalic Acid Diathesis*, Dr. Prout† advises the mineral acids generally, either alone or combined with the Sulphate of Iron or Quinine. He particularly recommends the Nitro-muriatic Acid in Distilled Water, till the Lithate of Ammonia or Lithic Acid begin to appear in the urine, or for a stated period of three or four weeks. By adopting such a course of acids three or four times in the year, and by a carefully regulated diet, he states that he has seen the diathesis gradually subdued, and at length removed altogether. In all instances its effects should be watched; and when the Lithates or Lithic Acid begin to appear, its use should be discontinued. It, in common with the other acids, should be left off after a time; as, when too long persisted in, it not only ceases to do good, but in most instances does harm. The above treatment, which is supported also by the experience of Dr. Golding Bird, should be combined with an animal diet, avoiding all food containing starch, sugar, &c. *In the Cystic Oxide Diathesis*, Dr. Prout‡ has seen most benefit from the Nitro-muriatic Acid. Under its use, he states that he has seen the peculiar smell of the urine which accompanies this diathesis very much abated; and all the properties of the secretion so much improved that the peculiar principle itself has for a time disappeared. The complaint, however, has generally shown a disposition to return when the medicine has been left off; but by recurring to the acid, the deposition has been again suspended.

1912. *In Chronic Hepatitis, and in Acute Hepatitis when the*

* Op. cit., p. 847.
† On Stomach and Renal Diseases, 4th Ed., p. 73.
‡ Op. cit., p. 234.

acute symptoms have been subdued by depletion and other antiphlogistic measures, Nitro-muriatic Acid, both internally and externally, has been used with great advantage. It was first proposed by Dr. Scott, in 1796. Mr. Annesley, who employed it extensively, placed great reliance on it; and Sir J. M'Grigor observes, after employing it in about 200 cases, "One fact we are clear and decided in, that the injury to the constitution is infinitely less from the acid than from the mercurial ointment, and that men are not half the time convalescent from the first as they are from the last remedy." It is in the form of bath that it is most used and proves most serviceable. Sir Ranald Martin* gives the following directions for its use:—1. The proportions of acid are, Hydrochloric Acid f℥iij., Nitric Acid f℥ij., Water f℥v. 2. Two gallons of water (about ten bottles) may suffice for a bath. 3. To each gallon of water add f℥iij. of the above acid. 4. The bath thus prepared will keep in use for three days, by adding f℥ss. of the acid and Oj. of water, morning and evening, in order to make up for the waste by evaporation. 5. A portion only of the bath to be heated for use, after which it is to be added to the remainder, so as to make the whole of a comfortable warmth. 6. Let both feet be placed in the bath, while the inside of the legs and thighs, the right side (over the liver), and inside of both arms, are sponged alternately. This should be continued for ten or fifteen minutes morning and evening. 7. While using the bath, a gentle aperient should be taken every other morning. 8. Earthenware or wooden vessels should be preferred as foot-baths, and all the sponges and towels should be kept in cold water, as the acid corrodes them. 9. In urgent cases, a general bath to envelope the whole body may be used. 10. If the acid-bath create much irritation of the skin, the quantity of the acid may be diminished. 11. The influence of the acid is not in the least degree counteracted by Opium, even when exhibited in the largest doses.

1913. *In Jaundice*, the acid, as advised in the preceding section, was praised by Annesley, Scott, and others. Dr. Copland† states that he has found it decidedly beneficial in some cases, when employed internally as well as externally. It is inadmissible when inflammatory action is present. *In Dysentery*, especially when connected with hepatic disease, Mr. Annesley directs lotions of this acid (*ut supra*) to be applied to the abdomen. *In Dropsy from disease of the Liver or Spleen*, much service will accrue from the Nitro-muriatic Acid bath, or from sponging the surface of the hypochondria, night and morning, with a warm lotion containing these acids, or from the internal use of them. (Copland.‡)

* Johnson and Martin on Tropical Climates, &c., p. 286; also, Prov. Journ., Sept. 1850.

† Dict. Pract. Med., vol. ii. p. 310.

‡ Ibid., vol. i. p. 616.

1914. *In Chronic Bronchitis*, sponging the surface of the chest with the acid lotion (sect. 1912) is often of great service in checking profuse expectoration, and in otherwise mitigating the severity of the symptoms. Dr. Graves* was in the habit of prescribing in this disease a liniment made by diligently mixing f℥j. of the Nitro-muriatic Acid and ℥j. of Lard, by means of a wooden or ivory spatula. When this mixture is complete, f℥ij. of the oil of turpentine is added.

1915. *In Acne Rosacea*, much benefit often results from the application of a lotion containing this acid; and also from the use of the acid foot-bath (sect. 1912). It is favourably spoken of by Biett, Cazenave, Schedel, Copland, &c. *In Favus*, Mr. E. Wilson† advises its internal administration.

1916. *In Scarlatina*, an excellent gargle is formed by diluting this acid with water, and sweetening with honey. It should be made of such a strength as to cause slight smarting, without actual pain. It may also be advantageously given internally, in doses of gutt. j.—ij. of the strong acid, in decoction of Cinchona, five or six times daily.

1917. *In Gangrene of the Lungs*, Dr. C. B. Williams‡ states that he has used the Nitro-muriatic Acid with a view to counteract the septic influence of the putrescent matter in the system, and apparently with good effects. He mentions one case in which it was productive of the best results.

1918. *In Cholera*, a combination of Nitro-muriatic Acid (♏iij.) and Laudanum (♏x.), every one or two hours, has been extensively tried in India, and with the best results. (Rogers.§)

1919. *In Syphilis*, the external and internal use of Nitro-muriatic Acid was first recommended by Dr. Scott,‖ who considered that, if persevered in until soreness of the gums was established, it was capable of effecting a complete and permanent cure of the disease. It is, however, rarely employed at present, unless Mercury is contra-indicated by a scrofulous, scorbutic, or broken-down constitution. *In Secondary and Constitutional Syphilis*, however, it may be employed with great benefit, in the manner advised in Hepatitis. It may be given internally, in doses of ♏x., thrice daily, with Decoct. Sarsæ. *In Syphilitic Sore Throat*, it forms an excellent gargle, properly diluted with water and honey.

1920. *In Epilepsy*, this acid is suggested by Dr. Hunt¶ on theoretical grounds. He relates seven cases, however, in which it appears to have been serviceable. He prescribes it internally, and also in the form of bath. Where hepatic derangement co-exists, it may prove useful.

* Clin. Lect., vol. ii. p. 11.
† Diseases of the Skin, p. 471.
‡ Lib. of Med., vol. iii. p. 151.
§ Report on Cholera, 8vo, 1848.
‖ Med.-Chir. Trans., vol. viii.
¶ Med. Times and Gaz., 1856.

1921. OLEA EUROPÆA. European Olive. *Nat. Ord.* Oleaceæ. *Linn. Syst.* Diandria Monogynia. *Hab.* Asia, Greece, Southern Europe.

Med. Prop. and Action. The leaves and the resinous exudation of the Olive Tree were formerly highly esteemed as tonics and febrifuges. The latter contains a peculiar principle, *Olivile.* The unripe fruit is esteemed as a preserve; but the ripe fruit is the part chiefly valued, as from it is obtained a large quantity of bland fixed oil (Oleum Olivæ), which is extensively employed, not only in medicine, but in the arts, in the manufacture of soap, glycerine, &c. Olive Oil is composed of about 72 per cent. of Oleine and 28 per cent. of Margarine. With alkaline bases it forms soaps. Hard Soap is made from Olive Oil and Soda (see SAPO DURUS); Soft Soap from Olive Oil and Potash (see SAPO MOLLIS). In doses of fl. oz. j.—fl. oz. ij. it is a mild laxative; but it is principally used as an emollient ingredient in enemas in dysentery, worms, &c., and it acts as a mechanical antidote in cases of poisoning, enveloping the poisonous particles, and protecting the surface of the stomach from their action. It enters into the composition of a large number of liniments, cerates, and ointments.

Offic. Prep. of Olive Oil (Oleum Olivæ):—1. Linimentum Calcis (Solution of Lime fl. oz. ij.; Olive Oil fl. oz. ij.).

2. Linimentum Camphoræ (Camphor oz. j.; Olive Oil fl. oz. ij.).

Olive Oil is also contained in Linimentum Crotonis; Emplastrum Ammoniaci cum Hydrargyro; Emplastrum Hydrargyri; Emplastrum Lithargyri; Emplastrum Picis; Enema Magnesiæ Sulphatis; Unguentum Cantharidis; Unguentum Hydrargyri Nitratis; Unguentum Plumbi Subacetatis, and Unguentum Veratriæ.

Dose of Olive Oil, fl. drm. j.—fl. oz. j.—fl. oz. ij., as a demulcent and laxative.

1922. *Therapeutic Uses. In Intermittent Fevers*, the leaves and resin of the Olive Tree are popular remedies in Italy and Southern Europe. Dr. Giadoron* relates several cases in which he employed the resin with success. He employed the resin in doses of ʒxij., divided into six parts: of these, one was taken in a little water, every two hours, during the intermission. The leaves he also found efficacious, in doses of ʒj.—ʒiij., every two hours, in the intervals of the fever. Much interesting information on the febrifuge properties of the Olive has been adduced by Mr. Daniel Hanbury.†

1923. *In Pruritus Pudendi*, a little Olive Oil, spread over the parts with a feather, often affords relief when other remedies have failed. *In Pruritus Scroti, seu Ani*, it is also very efficacious. *In that extreme irritation which so often accompanies the presence of Ascarides in the Rectum*, an enema containing fl. oz. ij.—fl. oz. iij. of Olive Oil often affords immediate relief. Dr. Bennett found it relieve the itching produced by Cowhage, more effectually than any other remedy.

1924. *In Ophthalmia Tarsi, and Granular Disease of the Eyelids*, a great amount of relief, sometimes permanent, will follow the introduction of a drop of Olive Oil into the eye. *Many*

* Ann. Univ. di Med., June 1851. † Pharm. Journ. xiii. p. 353.

forms of Ophthalmia, attended with much irritation, are benefited by this application.

1925. *Otalgia* is often greatly relieved by introducing a few drops of Olive Oil (with or without a few drops of T. Opii) into the meatus, which should be previously syringed out with tepid milk and water, or with diluted Liq. Plumb. Subacet.

1926. *In Ichthyosis and other Skin Diseases*, it proves occasionally serviceable. Dr. Elliotson* relates a case of Ichthyosis which completely yielded to its local application. No other remedy was used, and Dr. Elliotson considers that the cure was solely attributable to the oil. *In Scabies*, it has also proved successful. Dr. Da Luz† mentions two such cases. In one, the cure was effected in six, and in the other in seven days. The whole body was daily anointed with Olive Oil, and washed with warm soap and water, twice or thrice a week. This constituted the sole treatment. (See ADEPS.)

1927. *As a preventive of the Plague*, Olive Oil has, for a long period, enjoyed great repute. In 1797, it was observed by Mr. Baldwin,‡ the British Consul in Egypt, that among the million of inhabitants who died of plague in that country in the space of four years, not a single oilman, or dealer in oil, had suffered. Sir J. M'Grigor§ remarked that all the men employed in applying oil to the camels' feet, during the Egyptian campaign, escaped the plague; and Mr. Jackson‖ states that the Coolies employed in the oil stores of Tunis smear themselves with oil, and are rarely affected with the plague, when it rages in that city. It is also stated by Luigi,¶ of Pavia, that during the twenty-seven years that he was an attendant at the pest-house at Smyrna, he found frictions with oil more efficacious than any other medicine, both as a prophylactic and as a means of cure. In addition to these facts, it may be added, that when the plague, or a disease closely resembling it, ravaged the northern provinces of India, in 1815 and in 1819, other facts of a similar nature were recorded by Mr. M'Adam and Mr. White.** The latter gentleman justly observes, that if the disease be communicated by the touch, there can be no more powerful antidote than oily friction; but where the infection is received by the breath, it will prove efficacious only in so far as it invigorates the general system, and enables it to resist the influence of the disease.

1928. The other therapeutic uses of Olive Oil are, 1, as a laxative in *Abdominal Inflammation;* 2, as an emollient enema

* Lectures, p. 483.
† Zeitschrift für die Ges. Med., Oct. 1838.
‡ Duncan's Annals, 1797.
§ Medical Sketches, 1804.
‖ On the Commerce of the Mediterranean, p. 46.
¶ Quoted in Cyc. Pract. Med., art. Plague.
** Trans. of Med. Phys. Soc. of Bombay, vol. i. pp. 169—185.

in *Dysentery;* 3, as an antidote to the *Poison of venomous Snakes;* 4, as an external application in *Ascites and Anasarca, and also in Burns and Scalds.* In none of these respects does it require separate notice.

1929. Oleum Nigrum. Black Oil. A preparation highly valued in many parts of India in the treatment of Beriberi and other diseases. *Prep.* Into an earthen pot, the bottom of which is perforated by a number of small holes, are put the seeds of Celastrus Nutans (Malkungnee, *Hind.*) lbiss., Benzoin, Cloves, Nutmegs, and Mace āā oz. ss.; the mouth is closed, and the pot, placed over another, is luted to it. They are then placed in a pit three feet deep and nearly as wide, and surrounded by cakes of dry cow-dung, which are set on fire; and when they are consumed, about fl. oz. vj. of the oil is found in the under vessel, ready for use. It should be kept in well-closed vessels. Sp. Gr. 0·975. The Malkungnee seeds are the active ingredients.

Med. Prop. and Action. Stimulant and diaphoretic. When swallowed, it causes a sense of heat in the stomach, extending up to the throat, and an extrication of flatus. In many instances, no other sensible effect follows; but frequently a general sense of heat is experienced, and a free perspiration breaks out some hours after, which is not followed by exhaustion. Above 20 drops have caused abdominal uneasiness and dysenteric stools. It is inadmissible where there is any tenderness at the epigastrium.

Dose, gutt. x.—xv., twice daily.

1930. *Therapeutic Uses. In Beriberi,* it was first employed by the late Dr. Herklots, who states that he lost 1 in 50 cases of Beriberi, treated by it; while he had 11 deaths out of 15 before he adopted its employment. Although it is generally admitted to be a valuable remedy in this disease, no such success has attended its employment in the hands of others. Mr. Malcolmson* relates some cases in which its effects were most unequivocal, but he states that he knows of many cases in which it failed to produce any good effect; and I believe this to be the experience of most medical officers who have employed it. Mr. Malcolmson concludes, that the Oleum Nigrum possesses more power over the nervous affections than Treeak Farook (see that article), and less over the œdema and the dropsical symptoms generally. The dose is from x. to xv. drops twice or thrice daily, in the form of pills. The diet should consist of wheaten cakes and water. Improvement is generally evident in a few days. The diet should be continued twice the time of the medicine. Frictions are to be diligently employed, and blisters and tonics will often prove useful adjuncts. Chronic or old standing cases appear to be less under the control of the Oil than recent cases.

* On Beriberi, p. 311, et seq., from which most of this article is drawn.

OLEUM TEREBINTHINÆ. See TEREBINTHINÆ OLEUM.

1931. OLIBANUM. A gum resin, obtained from Boswellia Serrata. Boswellia Thurifera, Colebrooke. *Nat. Ord.* Terebinthaceæ. *Linn. Syst.* Decandria Monogynia. *Source*, India and Africa.

Med. Prop. and Action. Stimulant. Like other remedies of the same class, it is said to exercise a great influence on mucous membranes. It is rarely given internally; its chief use is for the purpose of fumigation, and as an ingredient in plasters.

1932. *Therapeutic Uses. To indolent Ulcers*, the following ointment (*off.* Beng. Ph.) is a useful application:—℞ Oil, White Wax, and Olibanum āā ʒj., M. It is an excellent substitute for the Elemi Ointment.

1933. ONONIS SPINOSA. The Rest Harrow. *Nat. Ord.* Leguminoseæ. *Linn. Syst.* Diadelphia Decandria. *Hab.* Europe, England.

Med. Prop. and Action. The cortical part of the root is diuretic and aperient.

1934. *Therapeutic Uses. In Chronic Rheumatism*, Dr. Ascherson* found that the best effects followed the use of this plant, and that it proved successful in many cases which had resisted all other remedies. He employed a concentrated decoction of the fresh herb, with its roots, or of the roots and stems dried, a quart to be taken daily. Its immediate effect he found to be powerfully diuretic.

1935. OPIUM. The inspissated juice obtained by incision from the unripe capsules of Papaver Somniferum. There are four important varieties met with in commerce, named after their respective sources:—1, Turkey or Smyrna (*offic.*) (the best kind, yielding the largest proportion of Morphia); 2, East Indian, or Bengal; 3, Egyptian; 4, European.

Med. Prop. and Action. The primary effect of a small dose of Opium is stimulant; the pulse is increased in force and frequency, the countenance is flushed, the eye bright, and the mind filled with cheerful images. The secondary effects are drowsiness, depression of the arterial action, loss of appetite, and constipation, with great mental languor. In larger doses, after the first stage of excitement has subsided, Opium proves narcotic, anodyne, and anti-spasmodic. The dose requisite for the production of these effects differs in almost every individual, being greatly influenced by the age, sex, and strength of the patient, the severity and character of the disease to subdue which Opium is given, and, above all, by the patient being accustomed or not to the habitual use of the drug. The principal seat on which Opium operates is the cerebro-spinal system, and, through the nerves arising therefrom, it affects more or less every organ of the body. The following

* Brit. and For. Med. Rev., vol. xx.

excellent summary of the effects of Opium in poisonous doses we give in the words of Dr. Guy.* "*The insensibility* produced by Opium differs, except on the near approach of death, from that present in Apoplexy or Epilepsy. At first, the patient is easily roused; but, in the more advanced stages, this can be effected only by violent shaking, loud speaking, tickling the nostrils, injecting water into the ear, or flecking the hands and feet with a towel. *Convulsions* are of comparatively rare occurrence, but have been observed in more than one case in a marked form, sometimes constituting the most prominent symptoms, at other times alternating with stupor. Locked-jaw and violent tetanic spasms have also been present in a few cases. The reflex function is often extremely active, the leg being forcibly retracted when the foot is tickled, though the patient lies quite insensible. *Delirium* is of rare occurrence, but has existed either with or without convulsions. *The pupils* are almost always contracted, and nearly or altogether insensible to light. *The countenance* is commonly pale and calm, as in a person in a profound sleep; but it has been observed flushed and excited. *The breathing* is generally slow, except in some instances in the first stage. In the long sleep which follows recovery from the urgent symptoms, the respiration is remarkably slow. In one case it was only six in the minute, while the pulse was upwards of 80. *The pulse* sometimes is nearly natural in frequency and force; in other cases, it is full and accelerated, but this happens chiefly in the first stage. In the stage of insensibility, while the patient can still be roused, the pulse is generally full and slow; but towards the fatal termination, it becomes small, frequent, and irregular. *The secretions*, with the exception of the perspiration, which is sometimes very abundant, are diminished, and the bowels are generally inactive; but cases are recorded in which both diarrhœa and diuresis were present. *Vomiting* is sometimes present from the first; but, in other cases, is among the early signs of recovery. It also follows the successful application of remedies."

The post-mortem appearances in poisoning by Opium are neither constant nor well marked. Turgescence of the vessels of the brain, with or without serous effusion into the ventricles, and at the base, and very rarely accompanied by extravasation of blood, forms the most marked morbid appearance. Lividity of the skin, congestion of the lungs, a fluid state of the blood, and early putrefaction of the body, are among the less constant appearances. (Guy.)

The shortest period within which Opium or its preparations have proved fatal is three hours; few cases are prolonged twenty-four hours: the average may be stated at from seven to twelve hours. When a patient survives *twelve* hours, there is good hope of his recovery.

The smallest dose which has proved fatal is four grains in an adult, and two drops of T. Opii in an infant. Enormous quantities have been taken by adults with impunity. In one instance, recovery took place after no less than eight ounces of solid Opium!

1936. *Opium Smoking*, a vice originating in China, has gained a strong hold amongst the lower orders, and the debased, of most Eastern nations. Sir W. O'Shaughnessy† gives the following graphic description of those samples so constantly met with in Calcutta:—"Stupor, reverie, and voluptuous listlessness are the immediate effects produced. In this state, the patient can be at once and easily aroused to exertion or business. No sickness, or constipation, or any other functional disturbance, supervenes on each indulgence; gradually, however, the appetite diminishes, the bowels become irregular, emaciation takes place, sexual tendencies are destroyed, and premature old age comes on." "This," he continues, "is an extreme case; when the habit is but moderately followed, it appears to occasion no greater evil than a proportionate indulgence in wine, or other spirituous liquors." From this opinion I beg to dissent; nor do I consider the above picture in the least exaggerated, even for a "moderate" Opium-smoker, if, indeed, such a being exists; for,

* Medical Jurisprudence, p. 522. † Bengal Dispensatory, p. 180.

when once the practice is commenced, it becomes rapidly an all-absorbing passion. In all the patients, who have been smokers of Opium, who have been under my care, I have found a cachectic state of the body, a premature decay both of mind and body, derangement of most of the functions; and in them, the slightest scratch often degenerates into a foul and ill-conditioned ulcer. Opium-smoking has been said not to shorten the term of life, but good statistics are yet wanting to support the assertion. Alibert* considers that the use of Opium renders the body less susceptible to the influence of miasmatic and other morbific actions.

1937. *Chem. Comp.* Opium contains a peculiar acid, the Meconic (3 HO, $C_{14}HO_{11}+6\,HO$); four alkaloids, viz., Morphia ($C_{34}H_{19}NO_6$), Codeia ($C_{36}H_{21}NO_6+2HO$), Papaverina ($C_{40}H_{21}NO_8$), and Thebaia, or Paramorphia ($C_{38}H_{21}NO_6$); and several neutral crystallizable bodies, viz., Narcotine ($C_{46}H_{25}NO_{14}$), Narceia ($C_{46}H_{29}NO_{18}$), Meconine, or Opianyl ($C_{20}H_{10}O_8$), and Opianine and Porphyroxine, principles whose composition is at present not understood. It also contains several *Resins*, gummy, fatty, and extractive matters, caoutchouc, a trace of *Volatile Oil*, and inorganic salts.† Of these principles Morphia and Codeia are narcotic and sedative. Narcotine is tonic and anti-periodic. The action of the other principles is unknown. Dr. Garrod states that the resinous matter possesses considerable power. In one case in which it was administered in rather large doses, giddiness and great contraction of the pupils ensued.‡

1938. *Offic. Prep.* 1. Morphiæ Hydrochloras. (See art. MORPHIA.)

2. Emplastrum Opii (Finely Powdered Opium oz. j.; Resin Plaster oz. ix.).

3. Enema Opii (Tincture of Opium fl. drm. ss.; Mucilage of Starch fl. oz ij.).

4. Extractum Opii (Opium in thin slices lb. j.; Distilled Water Ovj. Prepared by macerating the Opium in Oij. of Water for twenty-four hours, and expressing the liquor. The operation is repeated three times. The liquors are then mixed, strained through flannel, and evaporated by a water bath to a proper consistence). Dose, gr. ¼—gr. iij., or more. Believed to be less stimulating than powdered Opium, and preferable as a sedative.

5. Extractum Opii Liquidum (Extract of Opium oz. j.; Distilled Water fl. oz. xvij.; Rectified Spirit fl. oz. iij. Prepared by digesting the Extract in the Water one hour, filtering, and adding the Spirit). This preparation is one-eighth part stronger than the Tincture. Dose, ℥iv.—℥xl., or more.

6. Linimentum Opii (Tincture of Opium fl. oz. ij.; Soap Liniment fl. oz. ij.).

7. Pilula Opii (Finely Powdered Opium oz. ss.; Hard Soap oz. ij.; Distilled Water q. s.). A substitute for the Pilula Saponis Comp. (Ph. L.). Gr. v. contain gr. j. of Opium. Dose, gr. iiss.—v.—x.

8. Pilula Plumbi cum Opio (Finely Powdered Acetate of Lead gr. xxxvj.; Finely Powdered Opium gr. vj.; Confection of Roses gr. vj.). Gr. viij. contain gr. j. of Opium. Dose, gr. iij.—gr. viij.

9. Pulvis Cretæ Aromaticus cum Opio (Aromatic Powder of Chalk oz. ix¾.; Powdered Opium oz. ¼). Gr. xl. contain gr. j. of Opium. A substitute for Pulvis Cretæ Comp. cum Opio (Ph. L.). Dose, gr. x.—gr. lx.

10. Pulvis Ipecacuanhæ cum Opio (Powdered Ipecacuan oz. ss.; Powdered Opium oz. ss.; Sulphate of Potash oz. iv.). Pulv. Ipecacuanhæ Comp. (Ph. L.). (Dover's Powder). Gr. x. contain gr. j. of Opium. Dose, gr. v.—x.—xv.

11. Pulvis Kino cum Opio (Powdered Kino oz. iij.¾; Powdered Opium oz. ¼; Powdered Cinnamon oz. j.). Pulvis Kino Comp. (Ph. L.). Gr. xx. contain gr. j. of Opium. Dose, gr. x., upwards.

12. Tinctura Opii (Opium in coarse powder oz. iss.; Proof Spirit Oj. Prepared by maceration and expression). ℥xiv.½ contain gr. j. of dry Opium. Dose, ℥v.—℥xl., or even more, according to circumstances.

13. Tinctura Camphoræ cum Opio (Opium in coarse powder gr. xl.; Benzoic Acid gr. xl.; Camphor gr. xxx.; Oil of Anise fl. drm. ss.; Proof Spirit Oj. Prepared by maceration and expression). Tinctura Camphoræ Comp. (Ph. L.) (Paregoric Elixir). Fl. drs. iv. contain gr. j. of Opium. Dose, fl. drm. ss.—fl. drs. iv.

* Elémens de Thérap., t. xi. p. 76. ‡ Op. cit., p. 161.

† Garrod, op. cit., p. 154.

14. Trochisci Opii (Extract of Opium grs. lxxij. ; Tineture of Tolu fl. oz. ss. ; Refined Sugar oz. xvj. ; Powdered Gum Arabic oz. ij. ; Extract of Liquoriee oz. vj. ; Boiling Distilled Water q. s. To make 720 Lozenges). Each lozenge contains gr. $\frac{1}{10}$ of Extract of Opium.

15. Unguentum Gallæ eum Opio (Ointment of Galls oz. j. ; Powdered Opium grs. xxxij.).

16. Vinum Opii (Powdered Opium oz. iss. ; Sherry Oj. Prepared by maceration and expression). Dose, ɱv.—xl. or even fl. drm. j. It is of the same strength as Tinct. Opii. The Vinum Opii of the Pharm. Lond. contained Cinnamon and Cloves.

Other Preparations, not officinal. Solution of Bimeconate of Morphia (prepared by Squire). Same strength and dose as Tinct. Opii. According to the late Dr. Roots, this preparation disturbs the head less, distresses the stomach less, and constipates the bowels less, than any other preparation of Opium.*

Liquor Opii Sedativus (Battley). A valuable sedative and anodyne, fifty per cent. stronger than Tinct Opii. Dose, ɱiij.—ɱxx.

Black Drop. Originally prepared by Cook, of Manchester. One drop is equal to four drops of Tinct. Opii.

Nepenthe. Prepared by Ferris, of Bristol. Same dose as Tinct. Opii.

Dose of Powdered Opium, gr. $\frac{1}{4}$—gr. ij., or more.

1939. *Remarks on the Use of Opium.* 1. Some persons are peculiarly susceptible to the action of Opium, and are unable to take even the smallest dose without its occasioning delirium, a high state of nervous irritability, vomiting, diarrhœa, &c. Where this idiosyncrasy exists, Opium should not be given, unless some more than ordinary circumstances demand it. When, however, its exhibition is necessary in these subjects, it is sometimes tolerated, if given in the form of an enema ; or, if given by mouth, a few grains of Capsicum will be found to allay the vomiting, and the addition of Camphor, or Tartar Emetic, will in a great measure obviate the nervous irritability. As a general rule, however, Opium should not be given in any form in these cases.

2. Infants and young children bear the exhibition of Opium badly. Numerous are the instances on record, in which two or three drops of Laudanum have produced fatal results in young children ; and Opium in every form should be avoided, unless it is imperatively called for, and should never be given without the greatest caution. It should be laid down as a rule, that when it is necessary to prescribe opiates for children, those preparations whose strength is regulated by a certain standard should be preferred to those whose strength is variable and uncertain. Thus, Tinctura Opii, Tinctura Camphoræ cum Opio, and Dover's Powder are preferable to Syrup of Poppies, the strength of which is very variable.

3. Those persons who are unaccustomed to Opium require a much smaller quantity of the drug, to produce a certain effect, than those who are habituated to its use.

4. Combination with other drugs greatly modifies the action of Opium. Ipecacuanha increases its action on the skin ; mercurials obviate its constipating influence ; and Tartar Emetic lessens the action which it would otherwise excite in the nervous system.

5. When a large dose of Opium has been administered, and the patient is still suffering intense pain, how long should we wait before it would be considered safe to repeat it? This question, put by Dr. Griffin,† is answered by him, that half an hour is the limit within which crude Opium will be found to manifest its effects ; and that the dose may be safely repeated, if the pain or spasm be not relieved, however often it may be given. The liquid preparations of Opium act rather sooner than the solid drug.

6. When Opium is given for the relief of a pain, particularly of a periodical

* Squire's Comp. to Pharm., p. 135.

† Medical Problems, art. x., from which this and the three following remarks are drawn.

character, a third part of the dose which was required to relieve the paroxysm, is required to prevent its recurrence. In fact, a moderate dose given in the interval will sometimes prevent the accession of the fit, when no quantity, however great, can control it, after it has once set in.

7. When Opium or opiates have been given for any length of time, or in large doses, a period of exhaustion and sinking almost invariably ensues, from twelve to twenty-four hours after the drug has been discontinued. A great amount of exhaustion and sinking has been observed to follow the omission of even a very reduced dose, particularly in children. A little nourishment, or some slight stimulant, is here necessary.

8. An over-dose of Opium will produce effects very similar to those of an under-dose. Where a restless night has resulted from an over-dose having been given, sound sleep may occur next night without any Opium whatever. Again, if the doses of Opium given with advantage during the existence of inflammation, be continued when this has subsided, stupor or troubled sleep, according to the degree of surplus Opium given, will result.

9. In order to procure sleep, Opium should be given an hour or two before the usual hour of retiring to rest, in order to allow the stage of excitement to pass off, previous to that time.

10. When, from irritability of the stomach or from some other cause, Opium cannot be administered by mouth, it may often be advantageously administered in the form of enema; a larger dose, a third or half larger, is required when it is exhibited in the latter mode. It may also prove of the highest service when applied externally, in allaying pain, irritation, and inordinate action, not only of the skin, but of the subjacent tissues.

11. As a diaphoretic, Opium is best combined with Ipecacuanha. The cutaneous and the mammary secretions are the only ones not sensibly decreased by Opium; the former, it increases. On this point, Dr. Holland* observes, "Of the various internal means of obtaining diaphoresis, I believe Opium, in one or other of its forms, is the most uniformly certain and beneficial. Its action appears to depend upon its power of allaying inordinate circulation, or other excitement of the system." Its power as an antiphlogistic is considered in sect. Inflammation.

12. The researches of Anderson, Bell, and others have established the fact of a therapeutic and physiological antagonism between Opium and Belladonna. This fact has been turned to practical account, each having been successfully employed as an antidote to the other in cases of poisoning. They should not be prescribed in combination. A similar antagonism exists between Opium and Stramonium.

13. An antagonism between Opium and Quinine was first pointed out by Dr. Gubler.† Dr. Nivison, who has examined the subject, maintains that this antagonism is only partial, influencing or modifying only the bad effects of these agents, enabling us to prescribe them simultaneously with advantage, when they could not otherwise be given.‡

1940. *Opium is either contra-indicated, or should be given with caution, in the following states:*—1. In cerebral affections occurring in persons of a plethoric habit, and where congestion of the vessels of the brain is suspected. 2. In acute sthenic inflammation in plethoric subjects, previous to the employment of depletion. 3. In pulmonary affections, when the cough is dry and hard, and the expectoration is difficult and scanty. 4. In affections of mucous membranes of the air-passages, attended with copious secretion. In such conditions the narcotizing influence of Opium, by diminishing the respiratory function, has often proved fatal. 5. In morbid states of the body, where venous congestion is evident. 6. Whilst the urine is scanty and high-coloured. Alkalies should, in such a case, be generally administered first: but if the symptoms be urgent, and Opium is imperatively called for, it should be given in combination with alkalies. 7. During pregnancy. Dr. Denman§ states

* Med. Notes and Reflections, p. 61.
† Gaz. des Hôpitaux, May 29, 1858.
‡ See further Amer. Journ. of Med. Sciences, July 1861.
§ Midwifery, p. 235.

that he is persuaded that the frequent use of opiates by pregnant women is prejudicial to the fœtus. 8. In fevers and other morbid states, accompanied by contraction of the pupils.

1941. *Therapeutic Uses. In Inflammation*, Opium has been recommended as a powerful antiphlogistic. It has been objected to, on the ground that the primary stimulant effect of Opium tends to aggravate the original disease, and to increase the febrile action; and also that, by subsequently deadening the pain, which is generally a very fair index, taken in connection with other circumstances, of the extent and progress of inflammatory action, we involve the disease in obscurity; leading the practitioner, particularly an inexperienced one, into the belief that the inflammation is subdued, whilst in reality only one symptom is relieved. In some inflammations, Opium may be had recourse to, not only with safety, but with benefit; premising that, in the great majority of instances, local or general depletion has been previously employed. Dr. Watson* has ably drawn the line of distinction in these cases. "As a general rule," he observes, "you must be very careful how you give Opium in inflammatory diseases, that tend to produce death by coma or apnœa. If there be any unnatural duskiness of the face, if ever so slight a tinge of purple mingle itself with the colour of the lips, this is an appearance which should warn you against Opium. It shows that the blood is imperfectly arterialized; and imperfect arterialization of the blood either results from, or conduces to, a state of coma. On the other hand, it is, *cæteris paribus*, in cases where the tendency is towards death by asthenia, that the use of Opium, as a remedy for inflammation, is most serviceable; thus it has a capital effect often, after depletory measures, in cases of Peritonitis and of Enteritis." Dr. Stokes,† of Dublin, has drawn the following conclusions on this subject:—1. That in cases of recent inflammation of serous and mucous membranes, where depletion by blood-letting and other antiphlogistic measures are inadmissible, and the system is in a state of collapse, the exhibition of Opium has a powerful effect in controlling the disease. 2. That, under these circumstances, the remedy may be given with great benefit and safety. 3. That its effect then is to raise the powers of life, and to remove the disease. 4. That the poisonous effects of Opium are rarely observed in these cases; the collapse and debility of the patient appearing to cause a tolerance of the remedy. In some cases of acute inflammation, when the pain is excessive, and forms the prominent symptom, and when this is accompanied with much nervous irritation, Opium, after local or general depletion, may be given, not only with safety, but with benefit. A full dose (gr. ij.) may be given, and repeated until

* Lectures, vol. i. p. 240. † Dub. Med. Journ., No. 1.

there is a mitigation of the pain. Opium is contra-indicated in acute inflammation of the brain (which tends to produce death by coma), and in acute inflammation of the lungs, in Laryngitis and Bronchitis, all of which tend to produce death by apnœa. There are, however, occasional exceptions to this rule; as, for instance, *in Inflammation of the Brain*, in which Dr. Griffin* states that Opium, given in combination with Tartar Emetic, a formula for which the thanks of the profession are due to Prof. Graves, exerts an extraordinary power in allaying nervous irritation, quieting increased action in the capillaries, and inducing sound and refreshing sleep. It should, however, be employed with extreme caution, and only by one whose experience in this class of diseases gives him a title to depart from what is generally regarded as safe practice. In corroboration of Dr. Watson's opinion, stated above, we may refer to Prof. Alison,† who states that the value of Opium as an antiphlogistic is nearly confined to inflammation of the intestines, Enteritis and Dysentery (both of which produce death by asthenia), and that in these diseases, after depletion, the feelings are relieved, vomiting allayed, sleep procured, and the pulse is found to rise in strength. The preceding remarks do not apply to the combination of Calomel and Opium. (See CALOMELAS.)

1942. *In the advanced stages of continued and inflammatory Fevers*, Opium, if judiciously exhibited, is productive of the greatest benefit; but its administration requires much caution and circumspection. "When," observes Dr. Copland,‡ "the disorder of the sensorium outruns the other symptoms; when, by venæsection or topical bleeding, or by alvine evacuants and refrigerants, the general and local symptoms are relieved, but the delirium still continues; when to this are added tremors, subsultus tendinum, and unrestrained evacuations; when there has been at first high vascular excitement, and large evacuations have been required to guard the brain or other organs from mischief, and wild delirium has followed; if the patient has previously been in a delicate or nervous state; if he has been addicted to an excessive use of spirituous or vinous liquors, particularly the former; if the habits of the patient and his occupations have been such as to inordinately excite and exhaust the sensorium; or if the anxieties, toils, or debaucheries of life have previously injured his health, and more especially the state of nervous energy;—in these several circumstances, should opiates be resorted to, in the advanced progress of typhoid and of synochoid fever that has passed into the nervous or typhoid state." The mode of exhibiting opiates in these cases is a matter of no small

* Medical Problems, op. cit.
† Lib. of Med., vol. i. p. 111.
‡ Dict. Pract. Med., vol. i. p. 1035.

importance. In many cases one or two grains of solid Opium may be given, either alone or with Camphor and Nitrate of Potash. The combination with Camphor is to be preferred, when there is much adynamia, and no inflammatory determination to the brain. When the bowels are much disordered, Ipecacuanha may be added to these. In some constitutions, Morphia is preferable to solid Opium. Dr. Graves * speaks highly of a combination of Opium and Tartar Emetic *in the Delirium of Fever*. He also observes that you will often succeed in procuring sleep, by administering Opium in the form of enema, where you would fail of bringing it on by an opiate administered by mouth. On the subject of Opium in fever, the observations of Dr. Christison † are most judicious. "Opiates," he observes, "are chiefly useful in two states: when there is sleeplessness without delirium, or tendency to stupor; and when there is restless delirium, in concurrence with a soft pulse, and the general signs of exhaustion. In either case, the criterions which are favourable to their employment, are a pulse compressible and not jarring, no great flushing of the face, freedom of the conjunctivæ from particular injection of vessels, and a soft tongue, neither very much loaded, nor very dry and brown. In most circumstances where opiates are serviceable, they disagree if too often repeated. The best signs of their administration having been judicious are quiet sleep, with refreshment on awaking, and a moister state of the tongue. If they produce more delirium, or no refreshment, notwithstanding that sleep was their immediate effect, or if the tongue become more dry and brown, they should be abandoned." (See also next section.)

1943. *In Typhus Fever*, the indications for Opium are the same as noticed in the preceding section. Dr. Graves,‡ however, has supplied us with another caution, which merits especial attention. After remarking that a contracted state of the pupil is often present in Typhus Fever, he observes, "Whenever, in attending a case of fever, you meet with a contracted state of the pupil, even in a slight degree, although your patient may be restless and greatly in want of sleep, *beware of Opium*. I have often," he continues, "seen it tried, and I think scarcely ever without more or less injury to the patient. When Opium is administered in the advanced stage of fever, with symptoms of cerebral derangement, and a tendency to contraction of the pupil, you will find that the pupil which has been moderately contracted to-day will be greatly contracted to-morrow, and that the patient will soon sink into an irrecoverable state of coma. The contracted state of the pupil may exist in the extreme and

* Clin. Lect., vol. i. p. 115.
† Lib. of Med., vol. i. p. 186.
‡ Dub. Journ. of Med. Sciences, July 1, 1838.

most marked form in Typhus Fever, without being necessarily accompanied by headache and delirium ; the patients are restless, and in a state of remarkable nervous excitement ; but they answer questions, not unfrequently, in a tolerably clear and rational manner, and many of them distinctly affirm that they have no pain in the head. These circumstances may deceive the unwary ; but the experienced practitioner, who has witnessed many such cases, will feel that a fatal termination is threatened. Under these circumstances, Opium in every shape is injurious ; and even Tartar Emetic fails in controlling or diminishing the pernicious effects of the Opium. This is somewhat remarkable, as the combination of Tartar Emetic and Opium seldom fails in relieving cases similar in all respects, except the symptom of contraction of the pupil." In a subsequent part of this valuable lecture, Dr. Graves suggests a combination of Opium and Belladonna, when the above symptom is present, the latter counteracting the power of the Opium, in inducing or aggravating contraction of the pupil. He quotes some cases in which the combination was given with apparent advantage, but the subject requires further investigation. In the advanced stages of the fever, Opium should be combined with Camphor, wine, and other stimulants.

1944. *In Intermittent Fevers*, Opium is a valuable adjunct to other measures, although incapable itself of effecting a cure. Its employment is as old as Galen ; but, in modern times, was reintroduced by Dr. Trotter,* and was warmly advocated by Dr. Lind.† He states, that if given in the intermissions, it had not the least effect, either in preventing or mitigating the succeeding paroxysm ; that when given in the cold fit, it once or twice removed it ; but that when administered half an hour after the commencement of the hot fit, it generally afforded immediate relief. When thus given, he observed the following effects to ensue :—1. It shortened and abated the fit with more certainty than an ounce of bark. 2. It generally gave sensible relief to the head, took off the burning heat of fever, and occasioned a profuse sweat. 3. It often produced a soft, refreshing sleep, from which the patient awaked, bathed in sweat, and in a great measure free from all complaints. He further considered, that when thus given during the paroxysm of fever, it not only produced present relief, but rendered the patient less prone to liver disease, dropsy, &c. I cannot speak of its efficacy when administered in the hot stage ; but, if administered in a full dose (T. Opii ɱxl.) at the commencement, or even during the presence of the cold stage, I have seen it, in numerous instances,

* Medicina Nautica.

† On Fevers and Infections, 8vo, 1763.

operate almost like a charm in cutting it short; and although it did not appear to shorten the subsequent hot stage, it appeared in many instances to mitigate its severity. So perfectly aware of this were the soldiers during the Peninsular War, that Dr. Joseph Brown * states, that at the first appearance of the cold stage, they applied in most cases for "an ague draught," which consisted of ɱxl. T. Opii and ʒj. of Ether. Lind found that in children, rubbing the spine with an embrocation of equal parts of soap liniment and T. Opii, at the approach of the cold stage, often prevented the paroxysm. *In Hay Fever*, Mr. White Cooper † speaks highly of Tr. of Opium in doses of gutt. ij.—iij. every two hours for three times, followed by one drop every two hours till the discharge from the eye and nose diminishes. The treatment should be continued at longer intervals for three or four days.

1945. *In Small-Pox* of a mild character, Opium is generally uncalled for; but in severe or confluent cases, when there is much nervous irritability, intense itching of the skin, sleeplessness, and, in the advanced stages, alarming convulsions, Opium in a full dose may be given, taking care to prevent it constipating the bowels, or affecting the head. It is best conjoined with Tartar Emetic.

1946. *Diseases of the Head. In Insanity*, Opium, if given judiciously, is a remedy of great value; but great discrimination in its use is necessary. "A most important resource," observes Dr. Prichard, ‡ "for tranquillizing the system, and bringing back the healthy condition of the brain, is the use of Opium. There are few disorders in which so much benefit is derived from this remedy as in cases of insanity. While the skin is hot and dry, and the pulse full and hard, it is injurious; but when relaxation has been induced by blood-letting, Antimony, the cold douche, &c., Opium may be safely given. Sometimes a large dose (gr. ij.—iij.) given at once, will answer the end of procuring sound and refreshing sleep. A better method is to prescribe gr. x. of Dover's Powder, with or without Tartar Emetic, every three or four hours, until sleep is induced. After sound sleep thus induced, it is often found that the disease is almost cured." *In Puerperal Insanity*, the treatment by Opium is very successful. (See Puerperal States, *infra*.)

1947. *In Delirium Tremens*, Opium is the sheet-anchor, but discrimination is necessary in adjusting the dose, combination, &c. In ordinary cases, unattended with any great depression or inflammatory action, Opium, in doses of gr. j —ij., may be given every three or four hours, until sleep is induced. When, how-

* Cyc. Pract. Med., vol. ii. p. 226.
† Lancet, June 28, 1862.
‡ Lib. of Med., p. 134.

ever, much depression or debility is present, when the patient is old, and has been subject to several previous attacks, it should be given in combination with the Sesquicarbonate of Ammonia (gr. v.—x.); and when the excitement is very great, when inflammatory action is *apparently* impending, and Opium, given alone, has failed to produce amelioration, it should be given with Tartar Emetic, in the form advised by Dr. Graves:—℞ Ant. Potas. Tart. gr. iv., T. Opii ʒij., Mist. Camph. Oss., M. Of this, two tablespoonfuls should be given every hour or two hours, until an impression is produced. I have, on several occasions, witnessed striking benefit from this formula. It is inadmissible if the pupil is strongly contracted. Depressing aperients should be avoided, and it is rarely advisable to withdraw altogether the stimulus to which the patient has been accustomed. Camphor may often be advantageously combined with the Opium, as it appears to increase the sedative effect of the latter. When there is much depression, a combination with Quinine is often attended with excellent results. A draught containing T. Opii ♏x.—xxx., Quinine gr. j.—ij., repeated every four, six, or eight hours, is strongly advised by Dr. Todd.* Opium is inadmissible where there is a great tendency to coma. Some very judicious remarks on the use of Opium in this disease have been published by Dr. Laycock,† which may be consulted with advantage.

1948. *In Delirium occasioned by inflammatory action of the Brain or its Membranes*, particularly when it assumes a maniacal or violent character, and after depletions have been carried as far as may be thought prudent, and the bowels have been freely evacuated, Dr. Copland‡ states that he has frequently seen a full dose of Opium, or Hyoscyamus, given either alone, or with Antimony and Camphor, produce the happiest effects. Any unpleasant symptoms which may result, either from too large doses of these narcotics, or from their inappropriate use, will readily be removed by the cold or tepid affusion on the head. Opium, combined with antimonials and Camphor, also proves serviceable *in Delirium attended by exhausted nervous and vital influence*, and in that characterised *by depressed vital power and morbidly excited vascular action.*

1949. *In Epilepsy*, opiates have been employed from the earliest ages; Avicenna, Aëtius, and others, placing much confidence in them. In more modern times, they have been used by Fothergill§ and Cullen.‖ Opium is, however, a remedy far from being generally applicable; and, if employed injudiciously, may be productive of much mischief. It can only prove serviceable in

* Med. Gaz., 1850, p. 1077.
† Edin. Med. Journ., Oct. 1858.
‡ Dict. Pract. Med., vol. i. p. 296.
§ Med. Observations and Inquiries, vol. vi. p. 272.
‖ Mat. Med., vol. ii. p. 247.

purely asthenic cases, when the disease arises from moral causes, as fright, or is connected with much nervous excitement. If given during a paroxysm, it may prove injurious. Morphia is generally to be preferred to the solid Opium.

1950. *In Sleeplessness*, Opium is the sheet-anchor, but its mode of administration requires much attention. Dr. Graves'* observations on this subject are very important. "*In cases of sleeplessness*," he observes, "*particularly in that observed towards the termination of acute diseases*, and where you have administered an opiate with success, be careful to follow it up for some time, and do not rest satisfied with having given a momentary check to the current of morbid action. To arrest it completely, you must persevere in the same plan of treatment for a few days, until the tendency to sleep at a fixed hour becomes decidedly established. It should be given for five or six nights in succession, and, in obstinate cases, it must be employed for a longer period, and in undiminished doses. You need not be afraid," he adds, "of giving successive opiates, lest the patient should be accustomed to them, and a bad habit be generated; for the rapid convalescence and renewed health, which are wonderfully promoted by securing a sound and refreshing sleep, will soon enable him to dispense with the use of opiates." *The Sleeplessness of Delirium Tremens* is most successfully treated by the use of a combination of Tartar Emetic and Opium. (See *Delirium Tremens.*) *In Sleeplessness arising from Neuralgia, in that of Delirium Traumaticum, &c.*, Dr. Graves states that the results of his experience tend strongly to confirm Dupuytren's observation, that a certain quantity of Opium, when prescribed in the form of enema, will act with more decided effect in allaying nervous excitement, than the same, or even a larger quantity, when taken by the mouth. Dr. Graves, also, states that he has seen excellent results from the external application of Opium, in some forms of sleeplessness. He directs the scalp to be well steeped, and subsequently the following plaster to be applied:—℞ Pulv. Opii ℈ij., Camphor. ʒss., Emp. Picis, Emp. Plumb. āā q. s. ft. emplastrum.

1951. *In Hydrocephalus*, Opium has sometimes been employed in the second and third stages, to lessen the acute pain in the head, convulsions, and irritability of the stomach and intestines; and may be given with this view, at an early period, when the disease depends on exhaustion and debility, uncomplicated with inflammation. "It has often succeeded," observes Dr. Bennett,† "in effecting this without in any way interfering with the action of other remedies, or inducing constipation when moderately

* Clin. Lect., vol. ii. pp. 526,529, 538.

† Lib. of Med., vol. ii. p. 79.

employed." At the early part of the second stage, it may be given with Calomel, James's Powder, or Tartar Emetic, in doses varying from gr. $\frac{1}{8}$ to $\frac{1}{4}$, every four hours. If there is much irritability of the bowels, it is best administered in the form of Dover's Powder, combined with Hyd. c. Cretâ. According to Crampton and Cheyne, contraction of the pupils following the exhibition of this remedy indicates that it has been pushed sufficiently far. Dr. Risdon Bennett* has since stated, that, avoiding its use when the pupil is contracted (which he regards as a contra-indication of its use), he has employed Opium with the best effect, and has sometimes saved an apparently hopeless case. For a child one year old, one drop of T. Opii is a sufficient dose, and this may be repeated in three or four hours, if no unpleasant symptoms present themselves.

1952. *In Diseases of the Lungs and Heart*, Opium, uncombined with other remedies, is perhaps of less value than in affections of most other parts. Most of this class of diseases tend to produce death by apnœa; and therefore, as explained in the sect. Inflammation, are those in which Opium is the least applicable and the most likely to prove injurious. Combined with Calomel or Antimony, however, it sometimes is productive of the best effects. (See Calomelas and Antim. Tart.)

1953. *In purely Spasmodic Asthma, or in that connected with Hysteria*, a full dose of Opium (gr. ij.) will often at once allay the violence of the spasm, and shorten the paroxysm. It is in this form only that it proves useful; in all others, particularly in that arising from inflammation or irritation of the bronchial membrane, and in catarrhal Asthma, it proves highly injurious. Great caution is necessary in its use.

1954. *In common Catarrhs*, twenty or thirty drops of T. Opii, or an equivalent dose of some other opiate, given with a warm diluent at bedtime, and followed in the morning by whatever laxative may be required, will often arrest altogether a complaint, which the later use of purgatives, antimonials, and salines would only tardily remove. (Dr. Holland.†)

1955. *In Influenza*, Dr. Graves‡ states that he has employed Opium with favourable results. Having used antiphlogistics for a day or two, he advises the following mixture:—℞ Mist. Amygdalæ f℥vj., Potas. Nit. ℥j., Morphiæ Hydrochlor. gr. ss, M. In some cases, the Tinct. Camphor. cum Opio may be substituted with advantage.

1956. *In Hooping Cough*, Opium has been prescribed with a view of allaying spasmodic action. It has been given variously combined, by De Haen, Lettsom, Willan, and others. Of the

* Essay on Hydrocephalus, 8vo, 1843, Lond.

† Med. Notes and Reflections.

‡ Clin. Lect., vol. i. p. 445.

various preparations and combinations of Opium, however, as observed by Dr. Copland,* the Tincture of Camphor with Opium is indisputably the best, given with an alkaline subcarbonate, in almond or mucilaginous emulsion. In the chronic form of the disease, I have repeatedly seen benefit from the use of opiate frictions along the course of the spine. Dr. Müller,† of Berlin, speaks highly of the value of Morphia in minute doses in this disease. He states that, in very young children, he has commenced with gr. $\frac{1}{60}$th, and has increased the dose to gr. $\frac{1}{10}$th or even gr. $\frac{1}{30}$th, until a slight degree of narcotism has been manifested; and that he has persevered in it, in the same doses, until the whoop has quite ceased.

1957. *In Pleurodynia*, Dr. Graves‡ states that he has seen great benefit from directing the part to be well steeped, and then rubbed with warm Laudanum. This will often procure immediate relief.

1958. *In Phthisis*, in the advanced stages, Opium proves a valuable palliative. By its judicious use, we may in a measure relieve the cough, lessen the amount of expectoration, check the diarrhœa, and afford a great degree of sensible comfort. It may be given by mouth, or in the form of enema; and in such doses as the patient can bear without producing deep sleep, or any inconvenience. It is a valuable resource, often available when other expedients fail.

1959. *Chronic Coughs* are sometimes much benefited by the application of an opiate plaster to the chest.

1960. *In Endocarditis* and *Pericarditis*, occurring in the course of Rheumatic Fever, the use of Opium in full and repeated doses has been advocated by Dr. Sibson. Dr. Walshe§ also recommends it in full doses in these diseases, if agitation and disquietude be at all marked. If the surface has been blistered, Morphia may be used endermically.

1961. *Diseases of the Abdominal Viscera* are especially benefited by the use of Opium. Of its value in *Peritonitis*, *Enteritis*, *Gastro-Enteritis*, and *Hepatitis*, when given in combination with Calomel, I have spoken in considering the latter article. (See sect. 1403.)

1962. *In Peritonitis*, when depletion is inadmissible, Opium is alone sufficient to effect a cure. Dr. Stokes‖ has specified the following cases in which it may be thus employed:—1. Peritonitis arising from the escape of fæcal matter into the peritonæal cavity, through a perforating ulcer of the intestine. 2. That

* Dict. Pract. Med., vol. ii. p. 249.
† Ranking's Abstract, 1859, vol. xxix. p. 45.
‡ Op. cit, vol. ii. p. 538.
§ Diseases of the Lungs and Heart, Ed. 1854, p. 604.
‖ Cyc. of Pract. Med., vol. iii. p. 315.

arising from the bursting of an abscess into the serous cavity, or from rupture of the intestine, induced by external violence. 3. That occurring after the operation of paracentesis in delicate subjects. 4. Low typhoid Peritonitis after delivery. In all these cases, depletion is decidedly contra-indicated; and the indication clearly is to support and strengthen the patient. With this view, and with that also of preventing further mischief, Dr. Stokes advises Opium in large doses, gr. j. every hour, until a decided impression is effected. It is extraordinary the large doses which will be borne without inconvenience; in one of Dr. Stokes' cases, the man took 105 grains of Opium, in eight days, without the slightest cerebral disturbance. Dr. Stokes relates several instances in which the above treatment was eminently successful. Mr. Stanley* relates a highly instructive case of *Peritonitis from injury*, which yielded to the persevering use of Opium. The patient, a boy of five years old, took ɱxxij. of T. Opii per diem for ten days, without any unpleasant symptoms, or any unusual amount of sleep. Purgatives were strictly prohibited (this is a point also enjoined by Dr. Stokes), although the bowels were not open for nine days.

1963. *In Perforating Ulcer of the Stomach*, Opium is the sheet-anchor. Drs. Stokes† and Graves‡ successfully employed it as advised in the last section; and Dr. Ogier Ward§ testifies to its value. When given in large doses, frequently repeated, it checks the vermicular motion of the bowels, while it supports the powers of nature until an exudation of lymph takes place, which glues the ulcer to the adjoining tissues, preventing the further escape of the contents of the stomach, and isolating the seat of inflammation from the remainder of the peritonæal surface. The horizontal position should be insisted upon, and the food should be of an easily-digestible kind, and in the smallest possible quantities. Beef-tea enemas may be advantageously given. (Ward.)

1964. *In Dysentery*, Opium is a remedy of the highest value, and it possesses the peculiarity of being applicable more or less to every stage and almost to every form of the disease. The condemnation of it by Mr. Twining‖ led in a great measure to its falling into disuse, but the writings of Drs. K. Mackinnon,¶ Taylor,** Blecker,†† Morehead,‡‡ &c., have served to restore it to its proper place in the treatment of tropical dysentery; whilst Drs. Christison,§§ Cheyne,‖‖ &c., have proved its utility in the dysentery of temperate climates. Dr. Christison indeed regarded

* Lancet, Oct. 5, 1850.
† Op. cit.
‡ Clin. Lect.
§ Med. Times, June 22, 1850.
‖ Diseases of Bengal.
¶ Ibid., &c., 1848, p. 331.
** Indian Annals of Med. Science, April 1854, p. 420.
†† Ibid., Oct. 1853, p. 1.
‡‡ Dis. of India, p. 302.
§§ Edin. Monthly Journal, No. ii.
‖‖ Dublin Med. Reports, vol. iii.

it as capable of effecting a cure uncombined with other remedies, when administered early and boldly; and although it must be admitted that when given alone its remedial powers are great, yet it appears to gain additional value when given with other remedies, as Ipecacuanha, &c. The tolerance of the drug in these cases is very remarkable, and the dose may be gradually raised from gr. j. to gr. iij.—iv. three or four times daily, not only without inconvenience, but with marked benefit. Nausea or vomiting, tympanitic distension of the abdomen, and scanty stools are signs that the remedy has been carried as far as it can be consistently with safety. Some writers prefer Morphia; thus Dr. Blecker observes: "Muriate of Morphia is, even in the early stage, one of the best remedies. It diminishes the otherwise unbearable pain, moderates the peristaltic motion of the intestines, removes the dryness of the skin, promotes a free and copious perspiration, and procures wholesome sleep. It may be given in doses of gr. ¼ twice or oftener during the day." For the relief of *Tormina and Tenesmus*, Opium, in the form of enemata or suppositories, is one of the most generally useful remedial measures.

1965. *In Cholera*, Opium, either alone or in combination with Calomel, stimulants, or anti-spasmodics, was formerly regarded as indispensable in the treatment of this disease. This idea is now generally considered as erroneous; and on reference to the table showing the comparative rate of mortality under various modes of treatment (see CALOMELAS, sect. *Cholera*), it will be observed that a very high rate of mortality followed all those cases in which Opium formed a prominent part of the treatment. "It has been given," observes Mr. Ross,* "with a view of relieving the cramps and spasms; but the internal congestion which it produces has undoubtedly proved injurious. The use of opiates has been carried too far; they have locked up the biliary secretion, choked the capillaries of the brain with black blood, and overpowered and deadened the nervous sensibility, which ought to be sustained by every effort and appliance, as the only means left us, in the states of collapse, for rallying the declining powers of the patient." Mr. A. Blacklock† regards it as a poison in this disease; Mr. W. J. Cox,‡ as quite powerless to check the vomiting or purging, or to relieve the cramps, and as totally inadmissible in any stage or in any dose. The last opinion is perhaps too sweeping; as, in minute doses as employed by Dr. Ayre, it appears to have a beneficial effect (see CALOMELAS); but that it has not unfrequently proved injurious in large doses, either alone or in combination, is a fact that few will be inclined

* Lectures on Cholera, Med. Times, vol. xix. p. 107, et seq.

† The Leading Phenomena of Cholera, 1848.

‡ The Cholera, What has it taught us? 1850.

to doubt, after the experience of the last epidemics. Nevertheless, Opium, in combination with Chalk and other astringents, has been found valuable in the treatment of the *premonitory diarrhœa of Cholera.*

1966. *In Colica Pictonum*, Opium has been advised by Grashius, Sir G. Baker, Adair, and most writers on this disease. Dr. Pemberton* combined the Tincture with Castor Oil; and Dr. Copland† conjoins the first dose or two with Calomel, if the functions of the bowels be obviously affected, and if the stomach be irritable, as it generally is in the advanced stage of the disease. The dose of Calomel should be full (gr. ij.—v.), and not repeated oftener than once or twice.

1967. *In Strangulated Hernia*, Opium is one of the most powerful auxiliaries which we possess. Prof. Miller‡ places it on a par with Chloroform; and cases in which it has been successfully employed are recorded by Drs. Lyell,§ Bell,‖ Mayo,¶ Butler Lane,** and others. The object is to administer Opium until the patient is fairly narcotised, and a complete relaxation of the tissues is produced; under which circumstances the hernia, with but slight, if any, manipulation, can be reduced. To induce this state, a grain of Opium, or half a grain of Morphia, may be given hourly at the same time that emollient and opiate enemas are employed. Dr. B. Lane regards the benefit of this treatment as twofold: 1, it subdues the local and general irritation, thus materially augmenting the chance of reduction; and 2, should it be finally necessary to have recourse to the operation, this treatment will place the patient in the condition the most favourable for its performance, more or less anticipating and preventing the constitutional disturbance which would be liable to occur.

1968. *In Intus-susception of the Bowels*, Opium, as in the last section, should have the preference over almost every other remedy. Cases, illustrative of its successful employment, are recorded; and certainly, both reason and experience would lead us to expect the best results from its use. It may be given in liberal doses, by mouth, and in the form of enema, until the patient is fully narcotised. Purgatives should be avoided, as only tending to increase the already existing mischief.††

1969. *In obstinate Constipation*, which has resisted the previous employment of powerful cathartics, Mr. Wells‡‡ strongly advises repeated doses of Opium, combined with Calomel. Even if in-

* On Diseases of Abdominal Viscera, p. 150, et seq.
† Dict. Pract. Med., vol. i. p. 373.
‡ Surgical Experience of Chloroform, Edin. 1848.
§ Lond. and Edin. Journ. of Med. Science, July 1842.
‖ Ibid., Sept. 1841.
¶ Prov. Journ., April 21, 1847, and May 30, 1847.
** Ibid., June 16, 1847.
†† Med Times, Aug. 24, 1850.
‡‡ Med. Gaz., Nov. 22, 1850.

flammation be totally absent, the best effects may be expected from this combination. The Opium soothes the bowels already irritated by repeated cathartics, allays the over-excited peristaltic action, relaxes any contingent spasm, and quiets the patient's mind. At the same time, the Calomel, by improving the secretions and exciting the action of the liver, tends to remove the cause of the obstruction. No solid, irritating food should be taken, but beef-tea enemas may be employed. The advantages of Opium, compared with the use of purgatives, *in severe cases of Obstruction of the Bowels*, are insisted upon with much force by Dr. G. Evans.*

1970. *In all Spasmodic Affections of the Bowels*, Opium in full doses (gr. j.—ij.) proves signally useful. Fomentations, sinapisms, &c., may be used at the same time. If obstinate constipation be present, the Opium may be combined with Calomel, and followed by Castor Oil, or some carminative aperient.

1971. *In Gastrodynia*, Dr. Holland† observes that in the more complex cases, although the cause cannot be thus obviated, yet much relief may be afforded by the application of a strong opiate ointment, or a little Muriate of Morphia, to the blistered surface of the epigastrium.

1972. *In Sympathetic and Nervous Vomiting*, a few drops of T. Opii, in an aromatic water or effervescing draught, is often an effectual palliative. *In the Vomiting of Pregnancy*, it also proves effectual; but it should not be frequently repeated, as it appears, according to Dr. Denman, to exercise a prejudicial effect on the fœtus. Dr. Dewees‡ states that he has seen prompt advantage from the application to the epigastrium of a plaster, composed of equal parts of Opium, Camphor, and Soap. It is also sometimes an effectual palliative *in vomiting attendant on Cancer of the Stomach*.

1973. *In Chronic Diarrhœa*, arising from irritation or increased peristaltic action, an opiate enema (mxl.) will often prove effectual, or Opium may be given in a draught, with mucilage, at bedtime. *In the Diarrhœa of Children*, the Pulv. Cretæ Aromat. c. Opio is very effectual; and in the *Diarrhœa of Phthisis*, small doses of Opium may be given with manifest advantage. Cases of ordinary *Summer and Autumnal Diarrhœa* will generally yield to a dose of Calomel (gr. ij.—gr. iij.) combined with P. Opii gr. j., followed by a dose of Rhubarb or Castor Oil, and subsequently the following mixture:—℞ Tæ. Opii mxxx.; Tæ. Catechu fl. drs. iij.; Spt. Ammon. Aromat. fl. drs. ij.; Mist. Cretæ ad fl. oz. vj., M. sumat. fl. oz. j., 4tâ quâque horâ.

1974. *In Dropsy*, Opium has been employed by Brocklesby,

* Edin. Monthly Journ., Nov. 1853.
† Medical Notes and Reflections, p. 431.
‡ Diseases of Females, 6th Ed., p. 211.

Sir G. Baker, Mason, and others, with the view of diminishing irritation, and promoting the action of other remedies, particularly that of diuretics. Dr. Graves * speaks very favourably of its influence in these cases, especially when conjoined with the daily use of the vapour bath. "There seems," he observes, "to be an analogy between Chronic Dropsy and Diabetes, and experience has proved to me that this mode of treatment is most likely to be attended with success. Opium and other diaphoretics," he adds, "increase the strength, remove dropsical swellings, diminish the quantity of albumen in the urine, and bring on convalescence, without producing any bad effects on the head or digestive system."

1975. *In the Passage of Biliary Calculi, or Gall-Stones*, the intense agony is more effectually relieved by a full dose or doses of Opium, than by any other remedy, particularly if it be combined with the use of the hot bath. Two grains of solid Opium, or ɱxl. of T. Opii, administered either by mouth or in the form of enema, will generally be found sufficient; but should it not prove so, it may be repeated in half an hour. The same treatment is applicable to *Jaundice*, depending upon the impaction of a gall-stone in the ducts. Dr. Thudichum regards Opium rather as an auxiliary in these cases than to be relied upon alone, and he speaks strongly of the danger of over-dosing the patients with opiates.†

1976. *Diseases of the Genito-Urinary Organs. In Acute Nephritis*, Opium is a remedy of great value. Dr. Christison ‡ states that he has seen the disease at once arrested, by following up blood-letting by a full opiate. "For the efficacy of this practice," he observes, "it is essential that venæsection be pushed so far as to induce faintness, and to subdue pain; and that the opiate be given in a full dose (gr. ij.—iij. of solid Opium, or ɱxxx.—xl. of T. Opii) immediately after the faintness passes off." Where Opium must be given frequently, or where it fails to give relief, when administered by the mouth, it is often signally useful in the form of clyster or suppository.

1977. *In Nephralgia caused by the Passage of Calculi down the Ureters*, Opium given in full doses is the remedy most calculated to afford relief. The hip-bath and anodyne enemas prove most serviceable when employed at the same time.

1978. *In Calculous Diseases*, the most generally useful medicine we possess is Opium. Whatever may be the character of the calculus, whenever much pain and constitutional irritation are present, Opium proves signally beneficial. It may be given by mouth; also in the form of enema or suppository; or it may be

* Clin. Lect., vol. ii. p. 277.
† Ranking's Abstract, xxxvii. p. 275, 1863.
‡ Lib. of Med., vol. iv. p. 277.

applied externally as a plaster. Some patients derive more benefit from one preparation of Opium than from another. Solid Opium, Liq. Opii Sed., or Dover's Powder, are the most generally useful forms. Morphia and its salts do not seem to exercise the same beneficial influence as Opium itself. It may be given in full doses (gr. j.—ij.), and repeated until relief is obtained; large doses will generally be borne without inconvenience. Dr. Watson * expresses his belief that no single drug has so much power in rendering alkaline urine acid as Opium.

1979. *In Cystitis*, Opium is a most valuable remedy. Local abstraction of blood by leeches or cupping, from the hypogastrium or perineum, hot fomentations, and Opium, either by mouth or in the form of enema (T. Opii ♏xl.—lx. in Aq. fl. oz. ij.—fl. oz. iij.), should form the main treatment. Mr. Liston † advised a suppository, composed of Opium gr. ij.—v., with gr. x.—xv. of Extract of Hyoscyamus. "Its effects," he adds, "are almost instantaneous; all pain goes off; the patient becomes quiet, loses all recollection of his former sufferings, and often remains in a state of enviable comfort for twelve or sixteen hours. The suppository may be repeated as need be; the preferable time for its exhibition is the hour of sleep." Copious mucilaginous diluents should also be given. *In irritable states of the Bladder*, the above treatment, modified according to the urgency of the case, may be had recourse to with advantage. It proves in many instances essentially useful in alleviating the severe pain occasioned by the *presence of Calculus in the Bladder*. In such cases it is best administered in the form of enema or suppository.

1980. *In retention of Urine from Spasmodic Stricture*, Opium is one of the most efficacious medicines which can be employed. Sir B. Brodie ‡ relies chiefly upon it, when mechanical means fail. He advises f℥ss.—f℥j. of T. Opii to be given in a glyster in f℥ij.—f℥iij. of thin starch. If this should not succeed, he gives Opium in a full dose by the mouth; and the dose may be repeated every hour, if necessary, until the patient can pass urine. He adds, that, according to his experience, the cases in which the stricture does not become relaxed under the use of Opium freely administered are very rare. In retention following an indulgence in spirituous liquors, a saline aperient draught may be given advantageously, before the opiate.

1981. *In Diabetes Mellitus*, Opium is a valuable resource, diminishing the nervous irritability of the system, and at the same time exercising a decidedly sedative influence on the urinary secretion. The quantity of the discharged fluid is always found to be diminished after its administration, and the saccharine

* Lectures, vol. ii. p. 586.
† Elements of Surgery, part iii. p. 105.
‡ On Diseases of the Urinary Organs, 3rd Ed., p. 38.

quality moderated or removed. It is, however, to be regarded solely as a palliative; for when the medicine is discontinued, all the symptoms of the disease return, with their original violence. Drs. Elliotson,* Warren,† and others, employed it in large doses (gr. vj., twice daily); but Dr. Prout,‡ who entertained a high opinion of its value, observes that all the beneficial effects to be really expected from Opium may, in most instances, be obtained by moderate doses only; and when thus judiciously exhibited, and when no peculiarity of constitution forbids its use, it will be found one of the most powerful remedies that we possess in the disease. He advises it in the form of Dover's Powder, combined with full doses of the Peroxide of Iron. It may be remarked, finally, that whatever mode of treatment is adopted, Opium will be found an efficient adjunct. According to the observations of Dr. Basham,§ Opium is only a palliative of certain symptoms; the daily average amount of sugar is not materially lessened, and the physical condition of the patient not improved.

1982. *In Diabetes Insipidus*, Opium must be given regularly as a calmative and anodyne, and is perhaps the principal remedy. (Christison.)

1983. *In Cancer of the Uterus*, Opium stands first in the list of palliatives, being greatly superior to all other narcotics for efficiency and uniformity of action. It requires to be given in large and repeated doses, increasing the quantity almost daily; but it is sometimes necessary to omit or diminish it if hæmorrhage supervene. It may be given internally, as a means of quieting constitutional irritation; and may be used, at the same time, as a local anodyne in the form of enema or vaginal injection. Camphor is said to increase its efficacy. Care is necessary in selecting the form of Opium to be administered. With some persons solid Opium, with others T. Opii or Battley's Sedative Solution, agrees; whilst in others, the Acetate or Hydrochlorate of Morphia is productive of most benefit. When one form fails, another should be had recourse to, until it is ascertained which affords the greatest amount of ease and sleep. When vomiting occurs in the advanced stages, Opium requires to be combined with Hydrocyanic Acid or Spt. Æther. Sulph. Co.

1984. *In Irritable Uterus*, Opium is chiefly to be relied upon; but previous to its employment, it should be ascertained whether inflammation exist: if there be any, it should be subdued by local bleeding, by leeches, cold lotions, and other antiphlogistic measures. An instructive case is related by Gooch, in which Opium entirely failed; but all the symptoms yielded to the

* Med. Trans., vol. iv.

† Enquiry into the Nature of Diabetes, &c.

‡ On Stomach and Renal Diseases, p. 50.

§ Lancet, Jan. 28, 1854.

application of a few leeches. When the pain and irritation continue after the use of these measures, Opium, as advised in the last section, proves in the highest degree serviceable. An opiate plaster to the loins affords much relief. Dr. Ferguson advises an injection of a solution of the Acetate of Morphia (gr. ij.—iv. ad Aq. fʒj.). *In Painful Affections of the Uterus*, M. Aran * advises the application of Laudanum (gutt. xxx.—l.) in contact with the os uteri and upper part of the vagina, to be kept *in situ* by a magma produced by means of some inert powder, *e. g.* Magnesia. It may be repeated every day or every other day, the patient in the interval carefully washing out the previously applied magma. It is said to be most efficacious. It requires to be applied by means of a speculum. A similar mode of treatment, substituting Morphia for Laudanum, is advocated by Dr. Tilt.† *In Uterine Inflammation*, Dr. Tilt ‡ considers that the local application of opiates is far more effectual than their internal administration. He advises Opium to be given by the rectum, either in suppositories or in one or two ounces of warm milk. "Thus given, opiates generally quell pain without narcotising the patient; and what is given merely for the relief of pain often accelerates the cure of disease."

1985. *In Dysmenorrhœa*, when the pain and irritation are great, a full dose of Opium may be given with decided benefit. Prof. Simpson § found a mixture of T. Opii and Tartar Emetic, in minute doses, frequently repeated, of signal benefit. Employed as directed in the next section, it has been found to afford decided relief.

1986. *In Ovarian Irritation*, Dr. Churchill ‖ found the local application of Opium very effectual. He prescribes some balls or pessaries, each containing gr. ij. of Opium, ʒss. of white wax, and ʒiss. of lard. The whole, when mixed together, forms a ball about the size of a large marble; this is placed at the upper end of the vagina by means of a speculum, and the patient is directed to remain in bed for the remainder of the day. Dr. Churchill adds that he has tried this remedy in a considerable number of cases, and with almost invariable success; that since he has adopted it, he has rarely found it necessary to bleed or blister; and that he recommends it, with considerable confidence, to the profession. If a relapse occur after the first application, a second was found to remove it effectually.

1987. *In threatened Abortion*, Opium proves in some instances of great value; but caution is necessary in its use. Dr. Lever ¶

* Bull. de Thérap., 1857, vol. liii.
† Lancet, May 22, 1858.
‡ Ibid., Feb. 2, 1861.
§ Lib. of Med., vol. iv. p. 312.
‖ Dub. Journ. of Med. Science, Aug. 1851.
¶ Med. Gaz., Dec. 23, 1850, from which I have drawn largely in this and the few following sections.

has ably pointed out those cases in which it may be used with advantage, and those in which it is inadmissible. When abortion occurs from fœtal disease or imperfection, so that the premature emptying of the uterus is but an effort of nature to get rid of that which she cannot accomplish,—if, with the discharge, there is a patent state of the os uteri, and if the cervix be soft and loose, the exhibition of Opium will do harm by retarding the emptying of the uterus, which must sooner or later take place. When, however, it arises from accident, or from mental causes, or from those which may be said to be due to habit, he has known the exhibition of Opium by mouth, or, what is better, a cold starch injection with Opium, thrown into the bowel, and repeated every night or oftener, according to existing circumstances, followed by the best results. Application of cold, perfect quietude, and unstimulating diet should be enforced. When, however, *abortion has taken place*, especially if the event has been attended with much loss of blood, Opium, in almost every case, may be given not only with safety, but with benefit. It will then allay excitement, tranquillize the circulation, and procure sleep.

1988. *In those Pains which precede the establishment of Labour in the latter weeks or months of Gestation*, Opium may be given with great advantage. "Many a patient," observes Dr. Lever, "has been carried on to the full end of her term, who, but for it, would have prematurely parted with her offspring." He mentions the case of a lady, who, six weeks from the completion of her full term, fell on her back. The liquor amnii was evacuated. In addition to absolute quietude, she took Opium at irregular intervals, till the end of the ninth month, when a living child was born. She had miscarried twice previously.

1989. *In many varieties of natural Labour*, Opium proves most useful. For instance:—1. At the commencement there may be irregular and spasmodic pains. "These," observes Dr. Lever, "are recognised by their acuteness; by the want of consentaneous action in the uterine fibres, some portion of the uterus during their continuance is hard and contracted, the other portion is soft and yielding; there is no distinct or regular interval of time between the occurrence of pain; and if untreated and unrelieved, the strength of the patient is exhausted before the establishment of true labour-pains; or the child, which, at the commencement, presented normally with the head, has its position changed to that of the shoulder, by reason of the uterus contracting on one side, and forcing its contents over to the uncontracting or yielding side." In such a case, the utility and value of Opium is most marked. It may be exhibited by mouth, or *per anum*. It will calm the spasm, subdue irregular action, alleviate pain, procure sleep, and, after this, true and regular uterine action will be established. 2. *When the liquor amnii escapes* early, before the

os uteri has commenced to dilate, and the child, in consequence coming in immediate contact with the uterus, gives rise to intense pain and protracted labour, the judicious exhibition of Opium controls hyperuterine action, alleviates pain, and gives a better security for the welfare of the child. 3. When the os uteri is hardened and undilating, depletion, the warm bath, and the exhibition of Antimony, should be employed; and when, by these means, the relaxation of the os has been produced, Opium, given in a full dose, will render such permanent, and thus prove a most valuable agent in completing a safe delivery. 4. In women who have suffered from irritable uterus, where the vagina is generally hot and dry, although not over-sensitive, but the moment the examining finger touches the os uteri she shrieks out and suffers intense agony, Opium, either by mouth, or, what is better, *per anum*, acts like a charm. 5. In cases of transverse presentation, where it is necessary manually to interfere, to bring the long axis of the child to correspond with the long axis of the uterus, we may assist in relaxing the os uteri, and abate uterine contraction, by the exhibition of a full opiate. Dr. Lever considers this safer and more efficient than the use of small doses frequently repeated. 6. *When Labour is complicated with Tumour*, Opium will allay inordinate action, until we employ those manual or surgical means which are necessary to remove the obstructing cause to delivery. It is true that Opium cannot take away the mechanical obstacle, but it may and will lessen inordinate uterine action; for, in practice, we find that if there be any difficulty in the passage of the child, and the uterus is stimulated to undue action, or if such be not allayed or be overlooked, rupture of that viscus itself may take place. 7. *In Ruptures of the Vagina and Uterus*, Dr. Lever regards Opium in full doses, as capable of saving the patient. He mentions a case in which full doses of Opium, repeated at varying intervals for several days, brought about a successful termination.

1990. *In After-Pains*, the Tincture of Opium, in doses of ♏xv.—xx. in some aromatic water or Camphor julep, is generally effectual. Dr. Tyler Smith* advises an opiate liniment to be gently rubbed over the abdomen, but chiefly on the mammæ. He states that, when thus applied, it acts by reflex action, and effectually allays excessive sensibility of the uterus.

1991. *In Puerperal Convulsions*. 1. In convulsions, especially those of the hysterical form, occurring, as they do, more frequently during pregnancy than during labour, Opium is a valuable remedy. "This form of convulsions," observes Dr. Lever, "evidencing itself, as it does most frequently, during

* Lancet, Nov. 25, 1848.

gestation, is readily recognised by the predisposition of the patient, often induced by mental anxiety, irregularity of diet, preceded by intolerance of noise, sleep short and interrupted, twitchings, startings, oppression of the chest, difficulty of breathing, &c., and when the convulsions manifest themselves, the larger muscles are more often affected than the smaller; here we find, after the paroxysm is over, that a mild opiate soothes the patient, allays the twitching, and procures sound and refreshing sleep." 2. *In the anæmic form of Puerperal Convulsions*, associated as it not unfrequently is with large losses of blood, where the face is pale, the eyes glassy, the features shrunken, the countenance betokening exhaustion, the skin cool, the breathing laboured, the pulse small, quick, and irritable, with noise in the ears, and pain and weight on the top of the head; where there is sleeplessness or restlessness, partial amaurosis, strabismus, and sometimes delirium; while close attention is paid to the position of the head and body, while stimulants are administered with judgment, while contraction of the uterus is secured, Opium will be found to act like a charm. 3. *In genuine Puerperal Convulsions* (eclampsia), where vascular excitement has been subdued, and relaxation of the soft parts has been accomplished by depletion, purgation, and tartarised Antimony, and where the repetition of the fits seems to depend upon irritation, Dr. Lever states that he has occasionally seen them checked by the administration of a full opiate. According, however, to the experience of Locock* and the best authorities, it proves injurious in convulsions occurring in plethoric subjects.

1992. *In Puerperal Insanity*, after freeing the bowels by purgatives and enemas, a full dose of Opium (gr. ij.—iv.) may often be given at once with advantage; sometimes half a grain of the Hydrochlorate of Morphia may be preferable. Dr. Prichard† says that he has generally found Dover's Powder (gr. x.), repeated every three or four hours, until sleep is induced, successful. It is contra-indicated, if there be heat of the scalp, flushings of the face, pains in the head, &c. When great debility exists, it may be combined with Carbonate of Ammonia and other stimulants. Dr. Mackenzie's‡ observations on this point are deserving of careful attention. After remarking that the administration of Opium in these cases requires much caution and consideration, he observes, "Opium has a twofold action upon the economy, and each is distinct and dissimilar. Upon the functions of animal life, it operates as a sedative; upon those of organic life, as a stimulant; and thus, whilst, on the one hand, it lowers inordinate action of the brain and spinal cord, it tends, on the other, to

* Cyc. Pract. Med., art. Convulsions.

† Lib. of Med., vol. ii. p. 43.

‡ Lond. Journ. of Med., June 1851.

exalt the activity of the vascular and organic functions. Hence its efficacy is greatest in those cases in which the sanguiferous system is most depleted, and the vital and organic functions are most depressed; and, conversely, its employment is least proper where there is a tendency to vascular fulness, whether general or local, and more especially of the encephalon. In proportion then as the pulse is rapid and weak, in proportion as organic debility prevails, and there is an absence of cerebral congestion or determination,—its use is indicated in this disease; and whatever may be the intensity of the mental excitement, in such cases it may be given fearlessly and freely. When, however, these conditions do not exist unequivocally, as will happen in the majority of instances, it must be had recourse to more guardedly, and its action modified according to the particular circumstances of each. "It is certainly impossible," he adds, "to lay down a rule applicable to all cases, for the administration of Opium in this disease; full doses at bedtime, with smaller during the day, answer well in some instances; and it is sometimes useful to alternate the use of one narcotic with that of another." Tranquillity and sleep are the great desiderata to be attained, and beyond this, it is not advisable to push the remedy.

1993. *In Puerperal Fever*, Opium is a very valuable remedy. It tends in a marked degree to allay the pain, and to reduce the excitement of the nervous and vascular systems. Dr. Churchill* speaks highly of its efficacy. He states that he has seen cases yield to the administration of one grain of Opium repeated every hour, until the symptoms have subsided. Dr. Stokes was the first to point out the value of Opium in these cases, and Dr. Churchill states that he has repeatedly verified his remarks on its value. The treatment of Puerperal Fever by large and repeated doses of Opium has more recently been advocated by Dr. A. Clark, of New York.† He regards it as chiefly useful when *Peritonitis* is a prominent element; and to be successful, he adds, it should be commenced early, and the patient brought under its influence as rapidly as is consistent with safety. The tolerance of Opium in this disease is very marked.

1994. *In Puerperal Intestinal Irritation*, after the bowels have been well cleared out, Opium, either alone or combined with alteratives, is highly serviceable. It may also be given in the form of enema. (Locock.‡)

1995. *Puerperal Diarrhœa* may often be effectually arrested by a few drops of T. Opii, either alone or in combination with the mineral acids.

* Midwifery, p. 471.
† Ranking's Abstract, xxii. p. 186.
‡ Lib. of Med., vol. i. p. 363.

1996. *In Uterine Hæmorrhage*, whether occurring in the earlier months of gestation, or the latter; depending either upon the position of the placenta, or its partial separation; whether the loss take place after the birth of the child, and the throwing off the placenta; whether this be retained by irregular contraction or morbid adhesion; or whether the hæmorrhage take place after the complete evacuation of the uterus. Opium is a powerful and valuable remedy. The dose, however, requires to be carefully regulated according to the urgency of the symptoms, the amount of hæmorrhage, &c. "It should always be borne in mind," observes Prof. Murphy,* "that Opium possesses a two-fold action; namely, sedative in large, and stimulant in small doses; and that one effect or another is produced, according to the relation existing between the nervous energy of the uterus and the dose of the medicine given. If nervous irritability be not impaired, or if it be increased, a very small dose of Opium would stimulate, and a larger one would exhibit its sedative effects; but if, on the contrary, the irritability be destroyed and the uterus atonic, the same large dose would only act as a stimulant, nor will the sedative property of the medicine be observed until the nervous energy be restored. When, therefore, the loss of blood is slight, or at least not sufficient to impair the tone of the uterus, a large dose of Opium would be dangerous, lest it might act as a sedative, overcome the influence of the nerves, and cause the uterus to relax. When the loss of blood is great, and followed by exhaustion, then the very same quantity will produce an opposite effect; it will act as a stimulant, and cause contraction of the uterus." These are the *principles* which should guide us in the regulation of the dose. When the hæmorrhage is slight, and the tone of the uterus unimpaired, half a grain or a grain of Opium may be sufficient; whereas, if the loss be very great, two or three grains of Opium, or even ʒj.—ʒij. of the Tincture, will be necessary. Its operation, when the patient is apparently sinking fast into the grave from excessive hæmorrhage, is often, indeed in the majority of cases, very striking; in such cases it is superior to all other remedies. *In other forms of excessive Hæmorrhage*, causing great exhaustion, Opium is a most powerful remedy, particularly when combined with cordials, &c.

1997. *Diseases of the Eye, Ear, and Throat. In purulent Ophthalmia*, the Vinum Opii was first advised by Mr. Ware,† who directs that it should be placed on the inner angles of the eyelids, and gradually made to glide along the eye, by gently drawing down the lower lid. It is particularly advised where there is much scalding pain, lachrymation, and intolerance of light.

* Med. Gaz., Dec. 1, 1848.

† Obs. on the Eye, Lond. 1805.

It is an excellent application in the relaxed condition of the conjunctiva, which frequently remains after the acute inflammatory symptoms have disappeared, and the puriform discharge has ceased. It ought not to interfere with constitutional or other treatment. *In Pustular or Aphthous Inflammation of the Conjunctiva*, Vinum Opii is a valuable adjunct to other remedies. Mr. Morgan* advises one of the following collyria:—℞ Liq. Plumb. Diacet. ♏vj., Aq. f℥xiv., Liq. Opii Sed. vel T. Opii f℥ij., M.; or Argent. Nit. vel Zinci Sulph. vel Cupri Sulph. gr. ij., Aq. f℥x., Vin. Opii f℥ij., M. *In Scrofulous Ophthalmia*, these collyria may also be used with advantage; or the eye may be bathed with a tepid aqueous solution of Opium. *In Variolous Ophthalmia*, the undiluted Vinum Opii may be applied with advantage, when acute inflammation has been subdued. *In catarrho-rheumatic Ophthalmia, and in Ophthalmia Tarsi*, the local application of Vinum Opii, pure or diluted, may be used with advantage. In all the above cases, it should be borne in mind that the collyrium should not be of a strength sufficient to cause severe pain.

1998. *Otalgia* is often greatly relieved by the introduction into the external meatus of a piece of cotton soaked in equal parts of T. Opii and Ol. Olivæ. *In Otitis*, Opium is inadmissible, as it frequently causes distressing headache, &c. In some forms of *Atonic Deafness*, the endermic use of Opium proves serviceable. (See MORPHIA.)

1999. *In Cynanche Tonsillaris*, Dr. Christison† states that Opium, given at an early stage, will have the effect of cutting it short, or, at any rate, of greatly relieving the distressing symptoms. He relates two cases in which Opium, in the form of Dover's Powder, was attended with the best effects. *In Coryza*, also, he has seen a full dose of Opium, at the outset of the disease, signally useful.

2000. *In Toothache*, a piece of solid Opium, or a bit of cotton saturated with T. Opii, introduced into the carious tooth, frequently affords temporary ease.

2001. *Violent Spasmodic Hiccough* may often be effectually arrested by friction on the spine with an opiate liniment.

2002. *In internal Hæmorrhages*, Opium is a valuable adjuvant to astringents, as Acetate of Lead, Alum, &c. It proves highly serviceable in allaying the nervous excitement which so often accompanies profuse hæmorrhage; it should then be given with cordials.

2003. *In Acute Rheumatism*, Opium in large doses has been

* Diseases of the Eye, 8vo, Lond. 1839.

† Edin. Monthly Journ. of Med. Science, No. 2.

strongly advocated by Dr. Corrigan,* of Dublin, and others. The doses advised by Dr. Corrigan are very large: thus, in one case, he gave during the first day, gr. viij. of solid Opium; on the second, third, and fourth days, this was increased to gr. xij. daily. In another case, 200 grains were given in about a fortnight. Dr. Corrigan remarks that there appears to be a peculiar tolerance of Opium in this disease, and that he never saw the head affected by the large doses administered; occasionally he found it produce diarrhœa, which required astringents to check it. He directs that the Opium should always be increased in dose, both as to frequency and quantity, until the patient feels decided relief; and it should then be kept up at that dose, until the disease is steadily declining. He concludes his observations on eight cases successfully treated by this remedy, by remarking that the most important rule to be remembered in employing Opium for the cure of Acute Rheumatism, is that full and sufficient doses shall be exhibited. He found it fail in Rheumatism associated with Gout, or in which an hereditary taint existed. The above treatment has not proved generally successful; although as an adjunct to other treatment, Opium, in doses of gr. ij.—iv., proves highly serviceable. Dr. Todd † advises the following modification of the above, which is reported to be very successful:—℞ Opii gr. j., Pulv. Ipecac. Rad. gr. j., Potas. Nit. gr. v., M. This is given every two, three, or four hours, as the urgency of the symptoms requires. "The Opium," he observes, "quiets the nervous system, procures sleep, and, with the Ipecacuan, promotes sweating; while the Nitre acts upon the kidneys. At the same time, the bowels should be regulated by alkaline purgatives and the painful parts enveloped in wool." Twenty-six cases of Acute Rheumatism, successfully treated by large and repeated doses of Opium, are related as occurring in the practice of Dr. Sibson.‡ The tolerance of Opium in these cases was very remarkable, one man taking 141 grains of the drug in the space of twelve days.

2004. *In Rheumatic and Neuralgic pains of the Chest, Back, and Loins*, Dr. Graves§ states that the following plaster is often of great service:— ℞ Pulv. Opii ℈ij., Camphor ʒss., Emp. Picis, Emp. Plumb. āā q. s. ft. emplastrum. It also occasionally proves useful in *Sciatica*.

2005. *In Gout*, Opium, internally and locally to the affected part, was employed to mitigate the severity of the paroxysm, by many of the older physicians. At the present day, it is rarely exhibited alone, although it may be advantageously combined

* Dub. Journ., Nov. 1839.

† Clin. Lect., Med. Gaz., Oct. 4, 1848.

‡ British Med. Journ., Nov. 21, and Dec. 5, 1858.

§ Clin. Lect., vol. ii. p. 238.

with other remedies. Purgatives should in every case precede the internal use of Opium in this disease. "In weakly habits," observes Dr. Copland,* "or where there seems to be a state of asthenic or irritative action in the fit, and particularly if the external affection shifts its seat, the opiate should be combined with Camphor, in doses proportioned to the urgency of the nervous symptoms, or of vital depression. This combination will promote the cutaneous excretion; the Camphor preventing any tendency to the retrocession or suppression of the paroxysm that may exist, or that the Opium may occasion." I have found heated Laudanum, applied to the painful parts, on pieces of linen, afford marked relief, when other remedies had failed in producing any alleviation.

2006. *In Crick of the Neck*, diligent friction with Laudanum affords immediate relief. (Dr. Graves.)

2007. *In Phlegmasia Dolens*, Dr. Graves† observes that, in addition to the frequent application of leeches and the use of anodyne ointments, we should employ large doses of Opium internally. Some patients, he adds, if the bowels be regulated, will bear from gr. iv.—v. or even gr. vj. of Opium in the day, when the disease has advanced to the second stage. Mild mercurials may be employed at the same time.

2008. *In Ptyalism*, Opium has been given internally with the view of arresting the excessive discharge. Dr. Graves‡ quotes a case in his practice, in which its influence was very marked. The patient was profusely salivated, every means had failed to diminish the flow of saliva, until Opium (gr. j every four hours) was ordered. An almost immediate cessation of the discharge ensued.

2009. *In Cancer*, Opium, in large and increasing doses, has been employed with the view of alleviating the patient's sufferings. Dr. Copland§ believes that, when combined with suitable remedies, it is otherwise productive of benefit.

2010. *In Mortification*, Opium is an invaluable remedy when administered in proper cases. It soothes the pain, and diminishes the restlessness and irritability with which mortification is so often accompanied, and frequently procures sleep. It is especially indicated, when spasms or convulsions arise in the progress of the disease. *In sloughing phagedenic Ulcerations*, Dr. Tweedie states that he has seen the most astonishing results from large doses of Opium; and I can bear witness, in my own practice, to its value in these cases. *In Chronic Ulcerations*, especially of the lower extremities, Mr. Skey‖ speaks highly of the value

* Dict. Pract. Med., vol. ii. p. 50.
† Clin. Lect., vol. ii. p. 293.
‡ Ibid., vol. i. p. 478.
§ Dict. Pract. Med., vol. i. p. 288.
‖ Lancet, Jan. 26, 1856.

of the internal use of Opium. He considers no treatment as comparable to it. It is an adjunct which should never be neglected in these cases.

2011. *In Tetanus*, Opium was formerly much relied on as an anodyne and anti-spasmodic; but, in the experience of Fournier, Pescay, Rush, M'Grigor, and others, it proved valueless. Almost any amount of Opium may be given in some instances, without producing any impression on the disease; this is partially attributable to the impaired state of the digestive functions; thus Mr. Abernethy found ʒxxx. of solid Opium undissolved in the stomach of a man who died of Tetanus; but a more satisfactory explanation is suggested by Dr. Todd: * the chief object in the treatment of Tetanus, he observes, is to reduce the polarity of the spinal cord. Now Opium is not a sedative of the spinal cord. In cold-blooded animals, it exalts and stimulates that part, and it is not impossible that in warm-blooded animals it may have a similar tendency; it is, therefore, a remedy of little value in Tetanus, save as a sudorific, and in large doses it may be of an injurious tendency. In mild idiopathic Tetanus, partaking of an hysterical character, it has occasionally been found serviceable. When employed, it should be in the form of tincture, fʒj. or more, every three or four hours. At the same time it may be employed in the form of enemas, liniments, and baths. To obviate costiveness, Ol. Terebinth. fʒij., in emulsion, may be employed. It is inferior in efficacy to Chloroform, Aconite, Ice, or Cannabis.

2012. *In Hydrophobia*, Opium in large quantities has been administered by Drs. Babington, Vaughan, Booth, Bardsley, Brandreth, and others; and the result which they almost uniformly arrived at was, that it is utterly incapable of curing the disease, or even of controlling the symptoms.

2013. *In Neuralgic Affections*, Opium internally administered, is occasionally beneficial; but it is inferior in efficacy and in uniformity of action to Belladonna. Endermically applied, it is often of great service. (See MORPHIA.)

2014. *In Syphilis*, it was formerly highly esteemed; but, at the present day, it is only regarded as an adjunct to other treatment, to reduce any increased constitutional irritation, and to prevent other remedies, particularly mercurials, from passing off by the bowels. *In Syphilitic Eruptions, and Syphilitic Sore Throat*, attended with phagedenic ulceration, Opium is a valuable means of quieting the constitutional disturbance, and arresting the progress of the disease. Dr. Schedel† states that he has seen it in several cases effect a cure, where the eruptions and other symptoms had resisted all other measures. It is to be

* Med. Gaz., Nov. 29, 1850. † Lib. of Med., vol. i. p. 440.

given, he adds, at first in ½ gr. doses, gradually increased, every three or four days; it may be carried as far as gr. iv. daily, but it requires to be watched.

2015. *In Psoriasis*, attended with distressing irritation, Dr. Holland * states that he knows of no application which is more beneficial than soft poultices, prepared with a small proportion of a solution of Opium, and continued until the state of the skin is thoroughly changed.

2016. *The deep-seated pain in Herpes Zoster* is greatly relieved by an ointment containing Opium and Liq. Plumb. Subacet.

2017. ORIGANUM VULGARE. Common or Wild Marjoram. *Nat. Ord.* Labiatæ. *Hab.* Europe.

Med. Prop. and Action. The herb is aromatic, stimulant, and carminative. Its activity depends upon a volatile oil, which is the best form for internal use. It was formerly held in high esteem.

Dose of Oleum Origani, ℥v.—℥x.

2018. *Therapeutic Uses. In Flatulence, Flatulent Colic, Spasms, &c.*, a few drops of the oil on a piece of sugar prove serviceable.

2019. *Toothache* is greatly relieved by inserting into a carious tooth a piece of cotton saturated with Ol. Origani.

2020. *In Chronic Rheumatism, Bruises, Sprains, &c.*, the volatile oil, mixed with Olive Oil, is sometimes employed as a stimulant embrocation. It is also strongly advised in *Alopecia* or *Baldness.*

2021. ORYZA SATIVA. Common Rice. *Nat. Ord.* Graminaceæ. *Linn. Syst.* Hexandria Digynia. It grows abundantly in the low swampy lands of most tropical countries, where it constitutes the principal food of millions.

Med. Prop. Demulcent, and slightly diuretic, when taken in the form of decoction (Rice oz. j., Water Oij., boil and strain). This is also in very general use as an enema, in affections of the bowels. 1. Finely-powdered Rice Flour is used as a substitute for wheat flour, as a local soothing application to *erysipelatous surfaces, burns, scalds,* &c. 2. Smoothly mixed with water, it forms an excellent poultice, equal in most cases to linseed meal. 3. The bruised husks are occasionally used as a mechanical anthelmintic. 4. *In poisoning by Iodine* it may be substituted for starch, if none of the latter be at hand. New Rice is apt to produce diarrhœa and colic. As an aliment, it is highly nutritious, some samples containing as much as 80 per cent. of starch.

2022. OVUM. The Egg of the Hen of Gallus Banckiva (*var.* domesticus). Phasianus Gallus, *Linn.* The Common Domestic Fowl.

Med. Prop. and Action. The shell of the Egg, composed chiefly of the carbonate and phosphate of lime, was formerly much used as an antacid and absorbent; and entered into the composition of Miss Stephens' nostrum for

* Med. Notes and Reflections, p. 431.

dissolving calculi. The white (*Albumen Ovi*) and the yolk (*Vitellus Ovi*) (containing an albuminous principle named *vitellin*, oleine, margarine, cholesterine, and salts of lime, iron, &c.),* are well known as light and nutritive articles of diet, particularly during convalescence. The yolk is much used in pharmacy, in making emulsions, &c. The white is useful in some cases of poisoning. Agitated with Alum, it forms an astringent poultice. (See ALUMEN.)

The Mistura Spiritûs Vini Gallici (Ph. Lond.) (*vulgo* Egg-flip) is composed of Brandy and Cinnamon Water, of each ℥iv. ; the yolks of two Eggs ; White Sugar ʒss. ; Oil of Cinnamon ♏ij. It is a useful stimulant and restorative in exhausted states of the system.

2023. *Therapeutic Uses. In Poisoning by Corrosive Sublimate, the Salts of Copper and Zinc ; by Creasote and Corrosive Poisons generally*, the white of an Egg, from the quantity of albumen which it contains, is one of the best antidotes. The white of one Egg has been stated to be sufficient to counteract the effects of four grains of Corrosive Sublimate.

2024. *In Poisoning by the Mineral Acids*, the shells of Eggs finely powdered may be substituted for chalk, lime, &c., should these latter not be at hand.

2025. *In Hæmorrhage from Superficial Wounds, Leech-bites, &c.*, the local application of the white semi-opaque membrane which lines the shell is, in ordinary cases, sufficient to arrest the bleeding.

2026. OXALIC ACID. Acidum Oxalicum. HO, C_2O_3+2 HO. Is obtained chiefly by the action of Nitric Acid upon Sugar, or by exposing a mixture of sawdust with a solution of Hydrate of Soda and Hydrate of Potash to a temperature above 400° F. ; but it exists largely in Oxalis and Rumex acetosella, Cicer arietinum, and other plants.

Med. Prop. and Action. Refrigerant and sedative in very small doses largely diluted ; but it is inferior in efficacy to Citric or Tartaric acid, and much more dangerous. In large doses it is a powerful irritant poison : two drachms have been known to destroy life. When taken internally, it is absorbed into the system, and has been detected in the blood, in the substance of the heart, and in the urine ; in the latter it is found in combination with an alkali. Dr. Prout † says that it passes through the kidneys unchanged. When taken in a large dose, or in a concentrated state, it produces an intensely sour taste, heat in the throat, a burning sensation in the stomach, vomiting, sometimes of bloody, at others of greenish-brown, or black, grumous matter. Collapse follows, pale and anxious countenance, cold clammy skin, &c. Convulsions sometimes occur before death. The most characteristic *post-mortem* appearances are a white or shrivelled state of the mucous membrane of the mouth, fauces, œsophagus, and stomach, the membrane being more or less softened, and readily detached.‡ The vessels ramifying on the surface are filled with blackish blood, and the mucous membrane of the stomach occasionally has a blackened appearance, owing to the presence of altered blood. Occasionally the lining membrane of the stomach and duodenum are reddened. The antidotes are Chalk and Magnesia, or its carbonates, mixed with water.

2027. *Therapeutic Uses. In Inflammation of the Mucous*

* Garrod, Ess. Mat. Med., p. 327.
† On Stomach and Renal Diseases, p. 17.
‡ Guy's Med. Jurisprudence.

Membranes of the Lungs and Stomach, M. Nardo,* of Turin, states that for above twelve years he employed this acid with uniform success. He administered one decigramme (about gr. iss.), in solution, daily. In these doses he found it to possess powerful antiphlogistic properties, and to act as a direct sedative. He advises the following formula:—℞ Mucilag. Acac. f℥iij., Acid. Oxalic. gr. iss.—gr. ij., Syrup. f℥j., M., sumat. coch. min. pro dos. Dr. Hastings† mentions some cases of *Phthisis* in which Oxalic Acid in ½ gr. doses (alternated with Fluoric Acid) appeared to exercise a beneficial influence.

2028. Oxalis Acetosella. Wood Sorrel. *Nat. Ord.* Oxalidaceæ. *Linn. Syst.* Decandria Pentagynia. *Hab.* Europe.

Med. Prop. and Action. Refrigerant, anti-scorbutic, and diuretic. It allays inordinate thirst in febrile diseases, but has no advantage over other remedies of the same class. In moderate quantities it has no sensible effect on the system. Magendie‡ states, that when large quantities are taken as food, the Oxalic Acid which exists in this plant in the form of Binoxalate of Potash, passes through the kidneys, and frequently gives rise to mulberry calculus. It is, therefore, *contra-indicated* when a predisposition to this form of calculus exists. The leaves, bruised and made into poultices, are said to be powerful suppurants. The Binoxalate of Potash is sold in the shops as the Essential Salt of Lemons!

2029. *Therapeutic Uses. In Fevers*, Wood Sorrel is strongly advised as a drink by Bergius and other old writers. For this purpose, a pleasant beverage is made by boiling the herb in milk. As a refrigerant, it is useful, but beyond this its efficacy is doubtful.

2030. *In Scurvy*, it has long been held in high esteem. It is extensively employed by the Greenlanders and Esquimaux; and of its efficacy when taken fresh in the form of salad, there is ample evidence.

2031. Ox Bile Purified. Fel Bovinum Purificatum. Ox Gall. Fel Tauri. Fel Bovis. The Bile of Bos Taurus.

Med. Prop. and Action. Peptic (?) and aperient. It has also been regarded as anthelmintic. Dr. Grant§ states, that it has been employed from time immemorial by the Brazilians and, in other countries, it appears to have been administered in a variety of diseases for many centuries. Cartheuser, Baglivi, and others state that it prevents milk from coagulating, and turning sour, and when added to coagulated milk it immediately dissolves it again. (See further, *Dyspepsia.*)

Dose of Purified Ox Bile, gr. v.—gr. xx., in pills or gelatinous capsules.

2032. *Therapeutic Uses. In Dyspepsia and Constipation*, it is advised by Dr. Clay,‖ of Manchester. "Its effect upon the system," he observes, "is not purgative, but it acts as a mere

* British and Foreign Med. Rev., vol. xxxiv.

† Lancet, Jan. 3, 1855.

‡ Récherches sur les Causes de la Gravelle, pp. 39—126.

§ Clinical Notes, Medical Times, vol. xviii. 1848.

‖ Med. Times, 1842.

solvent of the material contained within the intestinal canal; producing no excitement to propel; but, by liquefying the mass, facilitates its excretion." It is also tonic, and in children moderately diuretic, but less so than in the adult. "It appears," he says, "to possess a peculiar specific action on all diseases connected with derangements of the digestive organs." He advises the following formula:—℞ Fellis Bov. ʒij., Ol. Carui ♏x., Magnes. Carb. q. s. ft. mas. et divid. in pil. xxxvj., cap. ij. bis in die. Several highly instructive cases of Dyspepsia and obstinate constipation are recorded, in which the remedy proved decidedly beneficial. In some instances, previous to taking the remedy, the evacuations were of a white, chalky character, but within a few hours of its administration they assumed a healthy and bilious character. Dr. Vanderpool,* of New York, relates a case of impaction of the fæces, attended with severe pain, which promptly yielded to Ox-gall, in doses of gr. viij. four times daily, and enemas containing the same. It is, however, a remedy which, notwithstanding the strong evidence in its favour, is but little employed. It certainly merits a further trial.

2033. *In Jaundice*, it has been successfully employed by Mr. Peacock,† and Dr. S. Johnson ‡ states that he has cured some obstinate cases by the exhibition of Ox-gall, in doses of gr. xv.—xxx. daily. *In functional Disorders of the Liver*, Dr. Copland,§ who first brought this remedy prominently forward in British practice, states that he has prescribed inspissated Ox-gall for many years with advantage, and advises its combination with Pil. Aloes c. Myrrh., Taraxacum, blue pill, soap, &c. *In Mesenteric Affections, Tabes Mesenterica, &c.*, he‖ also speaks favourably of its employment, having administered it in numerous cases since 1818. He found it particularly useful, when the secretion of bile has been deficient, and the digestive mucous surface irritable and relaxed. Dr. Clay¶ observes, that in this class of diseases, Ox-gall produces a speedy and decided improvement; the tympanitic state of the belly becomes reduced, the appetite improved, and the motions assume a healthy and bilious character. *In Diarrhœa with undigested matter in the stools*, it has also been administered with advantage. Dr. Copland** advises the following formula:—℞ Assafœtidæ, Fellis Tauri Inspis. āā ʒj., Pulv. Rhei ℈j., Syrup. q. s., M. ft. pil. xl. It is well worthy of a further trial. *In Hypochondriasis*, attended with a torpid state of the large bowels, the following pills, advised by Dr. Copland,†† may prove useful:—℞ Fellis Tauri Inspis., Pil. Galban. Co. (Ph. L.) āā ʒss., Ext. Aloes Pur. ℈j.,

* New York Journ. of Med., 1847.
† Lancet, 1836-7.
‡ Ibid., 1841-2, p. 337.
§ Dict. Pract. Med., vol. ii. p. 725.
‖ Ibid., p. 861.
¶ Op. cit.
** Dict. Pract. Med., vol. i. p. 531.
†† Ibid., vol. ii. p. 268.

Saponis Dur. gr. x., Pulv. Ipecac. gr. viij., M. ft. pil. xxx. Dose, one or two daily, before dinner.

2034. *In Delirium Tremens*, it is prescribed by Dr. Pauli,* with the view of improving the tone of the digestive organs. He directs ʒiij.—ʒvj. of fresh Ox-gall in some aromatic water, to be taken in the morning with half a glass of brandy; and gr. ij. of the watery extract of Opium at night. Of forty-three cases thus treated, he lost only one.

2035. *In Diabetes*, Hufeland and other German physicians are stated to have prescribed fresh Ox-gall, in as large doses as the stomach will bear, and frequently with the effect of causing the disappearance of the saccharine state of the urine during its use; the disease, however, has generally returned, upon discontinuing the medicine. Dr. Copland† adds, that he has seen great benefit derived from the inspissated Ox-gall in the form of pill, with Rhubarb and Aloes.

2036. *In Epilepsy*, the bile of various animals has long been employed. Dr. Copland‡ states that he has exhibited the inspissated Ox-gall combined with Assafœtida, Galbanum, Myrrh, Aloes, &c., and that it is of much service in the asthenic, dyspeptic, and uterine varieties, and after depletions have been carried to an injurious extent. He mentions one case in which he gave it with very marked advantage.

2037. *Deafness*, depending upon an accumulation of hardened wax in the meatus, is often much benefited by dropping into the external passage (previously syringed with warm water) a combination of one part of Ox-gall and seven of Olive Oil. *In Chronic Rheumatism, Sprains, &c.*, a solution of Ox-gall in Camphorated Spirit of Wine has been found an extremely useful embrocation. It should be well rubbed in, twice daily.

2038. *In certain forms of Hypertrophy*, Ox-gall is praised by Dr. Bonorden.§ He cites cases of *Induration and Hypertrophy of the Mamma, Hypertrophy of the Tonsils*, and some affections of the eye, as *Hypertrophic Opacity of the Cornea, Pannus*, and *Staphyloma*, in which great benefit has followed the local application of Ox-gall. He likewise suggests its use in *Hypertrophy of the Heart*. For external use he uses the following liniment:— ℞ Fell. Tauri Inspiss. ʒiij., Ext. Conii ʒj., Sapon. Natron. ʒij., Ol. Olivæ ʒj. M., to be rubbed in four times daily. For enlarged tonsils, it is triturated with water, and applied with a camel-hair pencil. In eye affections the fresh gall may be dropped into the eye several times a day, or it may be applied with a pencil.

* Med. Gaz., vol. ix. p. 776.
† Op. cit., vol. i. pp. 514—517.
‡ Op. cit., p. 809.
§ Med. Times, Oct. 2, 1858.

2039. Oxygenium. Oxygen. Dephlogisticated Air. An essential constituent of all living bodies. Water contains $\frac{8}{9}$ of its weight of Oxygen, and the atmosphere about 23 per cent. by weight. Sp. Gr. 1·1057. Eq. Wt. 8. Combined with other elementary bodies, it forms oxides. Prof. Faraday * has shown that it is magnetic.

Med. Prop. and Action. Stimulant (?). When pure Oxygen is inhaled, it increases the force and frequency of the pulse, causes exhilaration of spirits, and a gentle diaphoresis. These effects soon pass off. Animals confined in an atmosphere of pure Oxygen soon die, and after death the blood, both arterial and venous, is found of a bright scarlet hue, very liquid, and rapidly coagulated. (Pereira.) According to Dr. Richardson,† Oxygen proves fatal, not by the introduction of a poison into the system, but by a negation or withdrawal of some principle extant in the primitive Oxygen which is essential to life. MM. Demarquay and Leconte,‡ from a series of experiments on the effects of Oxygen on man, have arrived at the following conclusions:—1. Oxygen applied locally to wounds (by a special apparatus), whether recent or old, causes little pain, but ultimately gives rise to a more or less vivid reaction. It rapidly modifies, and in some cases removes, the inflammatory or congestive redness which surrounds wounds. 2. It may be injected into the mucous or serous cavities without ill effects. In one case, *Hydrocele* underwent a cure after its injection. 3. It may be inhaled in doses of 20 to 40 litres at one time daily, without inducing any accident. 4. Its essential property is to increase the strength, stimulate the assimilatory powers, and develop the appetite. They believe it to be especially indicated in *anæmic conditions* and certain diatheses, as *Diphtheritis, Syphilis, and Diabetes.* They believe it to be *contra-indicated* in febrile states, except under certain diathesic conditions, as croup; in deep-seated inflammatory action and visceral lesions; in diseases of the heart and large vessels; in neuralgia unconnected with anæmia, and where there is a dispositiou to hæmorrhage. The value of *Oxygenated Water* as a therapeutical agent has been examined by M. Ozanam.§ The Water is distilled, and then charged with Oxygeu under high pressure. He finds that it improves the condition of the blood in asthma, cyanosis, and other diseases in which that fluid is impaired or deficient. It possesses an oxidizing or metamorphic influence in cases where the organic products are arrested in their development, as *Glycosuria, Gout, Uric* and *Oxalic Gravel*, and perhaps *Scrofula.* It exerts a regulating and exciting action on the brain and thyroid gland, and hence is of use in *Goitre* and *Cretinism.*

2040. *Therapeutic Uses. In Asphyxia from deficiency of Atmospheric Air, from breathing noxious Vapours, from the Inhalation of Chloroform or Ether,‖ and in the Asphyxia of Infants,*¶ the inhalation of Oxygen gas has been recommended by various authorities. In some cases it proved successful, but in others it signally failed.

2041. *Other Diseases. In Phthisis, Spasmodic Asthma, and other Chronic Pulmonary complaints*, the inhalation of Oxygen has been productive of occasional benefit; but no reliance is to be placed upon it. Fourcroy** employed it in twenty cases of Phthisis, and found that in all it was prejudicial, hastening the

* Med. Gaz., Nov. 29, 1850.
† Brit. Med. Journ., July 14, 1860.
‡ Med. Times and Gaz., Feb. 27, and March 26, 1864.
§ Year-Book of Sydenham Soc., 1862, p. 173.
‖ Mr. Robinson, Lancet, 1848.
¶ Chaussier, Hist. de la Soc. Roy. de Méd., p. 346.
** Ann. de Chimie, No. iv. 1790.

progress of the disease, and increasing the febrile action. *In Constipation depending upon torpid and congested liver, with chronic derangement of the biliary secretion*, Dr. S. B. Birch * states, that he has often found the proper exhibition of Oxygen produce an almost immediate effect Dr. J. Hooper† records an intractable case of *Neuralgia* cured by the inhalation of Oxygen on the plan proposed by Dr. Birch : he likewise mentions a case of *Asthma* in which the same treatment afforded great relief. Local baths of Oxygen gas are highly spoken of by M. Laugier ‡ in the treatment of *Senile Gangrene*. Dr. Ramskill has tried the effect of the inhalation of Oxygen in various chronic forms of *Paralysis*, *Spasm*, and *Epilepsy*. In a case of Epilepsy occurring in connection with Syphilitic Cachexia, the inhalation of Oxygen two or three times a day seemed productive of benefit. The inhalation should be stopped on the accession of giddiness or other uncomfortable symptoms. For children, Dr. Ramskill adopts the plan of making them inhale atmospheric air through a glass inhaling apparatus one-third full of solution of Peroxide of Hydrogen. The solution must be well charged with Oxygen; and to facilitate its being given off, the inhaling apparatus is gently agitated by an attendant during the process, and a hot, moist cloth is kept wrapped round it. The inhalation is continued until some sensible effect is produced on the pulse or the feeling of the patient. The slightest feeling of giddiness is considered a sign of sufficient action.§

2042. Panis. Bread. Panis Triticeus. Wheaten Bread. A most valuable and nutritious article of food.

Medical Uses. 1. Bread poultice, which is thus directed to be prepared by Mr. Abernethy :‖—Put half a pint of hot water into a basin; add to this as much crumb of bread as the water will cover; then place a plate over the basin, and let it remain for about ten minutes. Stir the bread about in the water, or, if necessary, chop it a little with the edge of a knife, and drain off the water by holding the knife on the top of the basin; but do not press the bread as is usually done; then take it out lightly, and spread it about a third of an inch thick on some soft linen, and lay it on the part. A little Liq. Plumb. or Olive Oil may be mixed with it. It is an excellent application to *burns, scalds, excoriations, irritable ulcers, abscesses, &c.* Milk is sometimes substituted for water. 2. Bread is often used in the formation of pills, but it is objectionable for such a purpose, as it becomes very hard with keeping, and the Chloride of Sodium, which enters into its composition, is apt to decompose the active ingredient: this is particularly the case with the Nitrate of Silver.

Bread is objectionable as a diet for diabetic patients, as it tends, from the large proportion of starch (53 per cent.) which it contains, to increase the saccharine constituents in the urine. Almond or Bran Biscuits are the best

* Constipated Bowels, &c., Lond. 1861.

† Brit. Med. Journ., March 15, 1862.

‡ Medical Circular, July 2, 1862.

§ Med. Times and Gaz., July 4, 1863, p. 11.

‖ Lancet, vol. v. p. 135.

substitutes. Some excellent remarks on the employment of the latter article of diet in Diabetes have been published by Dr. Camplin,* who speaks highly of its value.

2043. PAPAVER RHŒAS. The Red or Corn Poppy. *Nat. Ord.* Papaveraceæ. *Linn. Syst.* Polyandria Monogynia. Indigenous. The dried Petals are officinal.

Med. Prop. and Action. Very slightly narcotic. The amount of active ingredients is very small but uncertain. The petals in the form of syrup are chiefly used as a colouring agent.

Offic. Prep. Syrupus Rhœados (Red Poppy Petals oz. xiij.; Refined Sugar lb. ij. ½; Distilled Water Oj. or q. s.; Rectified Spirit fl. oz. iiss. Prepared by adding the Petals gradually to the Water, heated in a water bath, and macerating for twelve hours; pressing out and straining the liquor, and dissolving in it the Sugar by means of heat. When nearly cold, the Spirit is added, and as much Water as shall make the product weigh 3 lbs. 10 oz. Sp. Gr. 1·330.

Dose, fl. drm. j. or more.

2044. PAPAVER SOMNIFERUM. The Garden or White Poppy. *Nat. Ord.* Papaveraceæ. *Linn. Syst.* Polyandria Monogynia. Probably a native of Persia, but now extensively cultivated in various parts of Europe and Asia.

Med. Prop. and Action. Every part of the Poppy, excepting the seeds, contains a white, opaque, narcotic juice, which, on exposure to the air, assumes a brown colour, and has a strong peculiar odour. This is Opium. It chiefly abounds in the capsules, which are the only officinal parts. An extract (Ext. Papaveris) is obtained by boiling the capsules without the seeds, and evaporating the liquid. It is the *Meconion* of the ancient Greeks. It is narcotic, in doses of gr. ij.—x.; and when Opium is inadmissible, it is occasionally substituted for it. It is much milder than Opium, and is considered to produce less nausea and excitement. A syrup (Syr. Papaveris) is also prepared from the capsules, which is used as an adjunct to cough mixtures, &c. for adults, and as an anodyne and narcotic for children. For the latter purpose, the dose is gutt. x.—xxx.; but its varying strength renders its use objectionable and unsafe. The seeds yield a bland oil. The capsules in decoction form a valuable anodyne fomentation in inflammations, nervous affections, spasms, &c.

Offic. Prep. of the Capsules:—1. Decoctum Papaveris (Poppy Capsules bruised and freed from the seeds oz. iv.; Distilled Water Oiij. Boil for ten minutes and strain. The product should measure fl. oz. xxxij.).

2. Syrupus Papaveris (Poppy Capsules bruised and freed from seeds oz. xxxvj.; Boiling Distilled Water Oxx.; Rectified Spirit fl. oz. xvj.; Refined Sugar lb. iv. Macerate the Capsules in the Water for twelve hours. Evaporate and strain. Reduce the strained liquor to Oiij., and when cold add the Spirit. Mix and filter. Distil off the Spirit, evaporate the liquor to Oij., and add the Sugar. The product should weigh lb. vjss., and have the sp. gr. 1·320). Dose for an adult, fl. drm. j.—fl. drs. iv.

Therapeutic Uses. See OPIUM.

2045. PAREIRA. Pareira Brava. The root of Cissampelos Pareira. Velvet Leaf, or Wild Vine. *Nat. Ord.* Menispermaceæ. *Linn. Syst.* Dicœcia Monadelphia. *Source*, Brazil and West Indies.

* On Diabetes, Lond. 12mo, 1858.

Med. Prop. and Action. Mild tonic and diuretic. It is advantageously given in Infusion (gr. ccclx. ad Aq. Ferv. Oj.) in doses of fl. oz. iss.—fl. oz. ij., three or four times daily. Sir B. Brodie's formula (*infra*) is also very good. The root contains a peculiar alkaloid, *Cissampeline;* a bitter yellow matter, some resin, starch, salts, &c. The properties of the plant are said to depend on the alkaloid.* It appears to exercise a specific action as an astringent and sedative on the mucous membrane of the genito-urinary system.

Offic. Prep. 1. Decoctum Pareiræ (Parcira sliccd oz. iss. ; Distilled Water Oiss. Boil for fifteen minutes and strain. The product should measure a pint). Dose, fl. oz. iss.—fl. oz. ij.

2. Extractum Pareiræ Liquidum (Pareira in coarse powder lb. j. ; Boiling Distilled Water Cj. or q. s. ; Rectified Spirit fl. oz. iij. Prepared by maceration and percolation, evaporation to fl. oz. xiij., and subsequent addition of the Spirit). Dose, ℥xxx.—fl. drs. ij.

Dose of powdered root, gr. xxx.—gr. lx.

2046. *Therapeutic Uses. In the advanced stages of Acute, and in Chronic Inflammation of the Bladder*, Pareira Brava proves particularly useful. Sir B. Brodie† states that he is satisfied that it exerts a great influence over this disease; very materially lessening the secretion of ropy mucus, and diminishing the inflammation of the bladder. He recommends the following formula:—Take of the root ʒss., add Water Oiij.; simmer over the fire until reduced to Oj. Of this fʒviij.—fʒxij. to be taken daily. From ℥xxx. to lx. of the fluid extract may be substituted, if preferred. To this may be added some Tincture of Hyoscyamus; and where there is a deposit of the phosphates, some Hydrochloric or Nitric Acid.

2047. *In Catarrhal Affections of the Bladder*, Dr. Prout‡ considers that Pareira is undoubtedly one of the best remedies we possess. *In Cystirrhœa* it has been given with unequivocal benefit. The above formulæ may be employed.

2048. Penghawar Djambi. The Malayan designation of the lower part of the stipes of a large Fern indigenous in Sumatra, which has recently obtained some note as a styptic. Mr. Archer refers it to the Cibotium Schiedei of Schleet and Chamisso.

Med. Prop. and Action. As a styptic, Penghawar Djambi, according to Dr. Vinke, possesses the following advantages:—1. It arrests more quickly than any other pharmaceutical means (agaric, sponge, &c.) *Parenchymatous, Venous or Arterial Hæmorrhage*, provided the diameter of the artery does not exceed one line and a half. 2. It produces a coagulum, even in cases where the blood has changed so much that it has nearly lost the property of coagulating, or where the walls of the vessels are so diseased that they are incapable of a plastic process, *e. g.* in carcinomatous and scorbutic ulcers. 3. It does not change the vitality of the wound or ulcer, and therefore does not exert an injurious influence on the healing process.

Penghawar acts better when crumbled than when applied entire. Five grains are sufficient to arrest considerable hæmorrhage, and more than gr. xx. are never required. It is to be pressed for two or three minutes

* Pereira, vol. ii. pt. 11, p. 672.

† Diseases of the Urinary Organs, 3rd Ed., p. 109.

‡ On Stomach and Renal Diseases, p. 392.

directly on the bleeding surface; after which a bandage or strips of adhesive plaster are to be applied over it, taking care not to draw the wound too closely together. If the bleeding does not proceed from the whole surface of the wound, it is not necessary to fill the entire cavity of the wound or ulcer with Penghawar. The hæmorrhage ceases even more rapidly if the Penghawar (in the form of a pencil) be pressed upon the bleeding surface, so that the filaments are directed perpendicularly against it. The internal administration of Penghawar (in hæmorrhage), as recommended by Gaupp and others, is quite useless. In order to retain its efficacy, it should be kept in a dry place, where it cannot absorb moisture.*

2049. Pepsina. Pepsine or Pepsin. The digestive principle obtained from the stomach of the hog, sheep, or calf.

There are two varieties of Pepsine used in medical practice. One is obtained by digesting the mucous membrane of the stomach of the calf or sheep, with its secretion, in distilled water, and precipitating the Pepsine by means of Acetate of Lead. The lead is then removed by Sulphuretted Hydrogen, which leaves the Pepsine in solution. The solution is acidified with Lactic Acid, and evaporated to a gum-like mass, which is then mixed with dried starch.† The other variety is made from the stomach of the hog, and was introduced by Dr. Lionel Beale under the name of Pepsina Porci. The lead process is not employed in its preparation. It is said to be five times stronger than the former preparation. Pepsine prepared from the stomach of the sheep or calf, and mixed with starch, occurs as a greyish white powder, having an acid and somewhat unpleasant odour. Beale's Pepsina Porci prepared by Bullock is of somewhat darker colour, free from acid, and has an odour like that of burnt flour. Pepsine, independently of starch, is soluble in water. Its watery solution, acidulated with Lactic, Phosphoric, or Hydrochloric Acid, has the power, at a temperature of 100° F., of dissolving albumen and fibrin. The amount dissolved by a given weight of Pepsine is the test of its activity. A temperature of 120° F. injures or destroys its solvent power.‡ It should be preserved in a well-stoppered bottle.

Med. Prop. and Action. Taken internally, it produces no marked physiological effects beyond increasing the appetite for food, and, under certain conditions, allaying irritability of the stomach. It forms, in fact, a sort of artificial digestive, and in this character is undoubtedly useful in some cases; but the extravagant laudations of some individuals, combined with the fact that many spurious, inert articles are sold under its name, have served to bring it into disrepute. Dr. Garrod§ observes, that its beneficial action is somewhat difficult to explain, seeing that the ordinary doses of the drug are able to cause the solution of so small an amount of nitrogenized matters when out of the body, 15 grs. of Boudault's Pepsine dissolving but 60 grs. of dried fibrin. The dose should be taken immediately before meals, wrapped up in a wafer or in the first spoonful of soup; and precaution must be taken not immediately afterwards to eat food which is at a high temperature. Several modes of administration have been proposed: we shall mention the following:—1. *Elixir.* Take (ordinary) Pepsine gr. lx., Distilled Water fl. drs. vj., White Wine fl. oz. j., Spirits of Wine fl. drs. iij., White Sugar oz. j., M. The dose, a tablespoonful, to be taken immediately after a meal. It has an agreeable taste, and women and children take it readily. 2. *Pastiles* or *Lozenges.* These are composed of Gum Arabic Paste, with a few drops of Essence of Lemon: each should contain four grains of (ordinary) Pepsine. Their agreeable taste is their great recommendation. The Syrup is an objectionable form. Some persons will take it readily spread on bread and butter, in the form of a sandwich. Pepsina Porci may be administered in the form of pills.

Dose of ordinary Pepsine, gr. xv.—gr. xx.; of Beale's Pepsina Porci, gr. ij.—gr. iv. To be taken immediately before or after or with a meal.

* See Lond. Pharm. Journ., 1859, vol. xvi. pp. 278, 322; Ibid., 1860; and Ibid., vol. ii. N.S., p. 224.

† Garrod, Ess. Mat. Med. and Therap., p. 325.

‡ Op. cit.

§ Op. cit.

2050. *Therapeutic Uses. In Dyspepsia connected with deficient secretion of gastric juice*, Pepsine seems to be especially indicated. Dr. Ballard* remarks that it is especially useful in gastric disturbances following the use of animal food. It often enables a patient who has not dared to attempt it, and could not do so without suffering, at once to eat it with impunity. The first dose usually in such cases produces an effect, and, after two or three more, no further discomfort is perceived. Even the severest cases of *gastralgia* are almost, as by a miracle, relieved by its use. If it fail to afford relief after three or more doses, it is probable either that the dyspepsia does not arise from a defect of the gastric secretion, or that some other condition predominates as its cause. It may be given conjoined with other medicines, which do not at all impede its therapeutic action: thus, with Hydrochlorate of Morphia, to relieve violent pain of the stomach; with Strychnine, to stimulate the peristaltic movements of this organ; with Nitrate of Bismuth, Lactate or Iodide of Iron, &c. The best formulæ for its administration are given above.

2051. *In Obstinate Vomiting of Pregnancy*, Pepsine is a remedy of great power. It was first used for this purpose by Dr. Le Gros,† who relates seven cases in which it proved signally beneficial. Its *modus operandi* in these cases is obscure, but its efficacy is often striking. In one case in my own practice, the Elixir (*ante*) proved completely and speedily effectual when all other means had failed.

2052. *In the Inanition of Infants*, Pepsine proved most effectual in the hands of Dr. Joulin.‡ He considers that it should be employed in all cases of congenital feebleness, with arrest of development of the digestive system, and even in complicated cases in which the lesion affects, at the same time, the digestive and respiratory systems. By removing one of the complications which threaten the life of the child, nature is frequently enabled to complete the cure; and the improvement of the digestive system is the first to be accomplished. In the *Diarrhœa of young infants*, dependent on the presence of undigested food, Pepsine in small doses proved effectual in the hands of M. Corvisart.§

2053. Petroleum. Petroleum Barbadense. Barbadoes Tar, an oil-like exudation from rocks, and found on the surface of certain lakes. It is met with abundantly in Trinidad, Barbadoes, also near Rangoon, on the banks of the Irrawaddy, and on the shores of the Caspian Sea.

* On Artificial Digestion, &c., Lond. 8vo, 1857.

† Bull. Gén. de Thérap., Feb. 15, 1858.

‡ Brit. and For. Med.-Chir. Rev., Jan. 1862, p. 235.

§ Rev. Méd.-Chir. de Paris, Dec. 1856.

Med. Prop. and Action. Stimulant, expectorant, sudorific, and anthelmintic. Externally applied, it is rubefacient.

Dose, gutt. xx.—xxx. in emulsion, or in any convenient vehicle.

2054. *Therapeutic Uses. In Asthmas and Chronic Coughs*, unattended with inflammation, it has been given with the effect of stimulating the expectoration.

2055. *In Chronic Rheumatism*, it has been used externally and internally with great advantage. Dr. O'Shaughnessy* states that it stimulates the skin, and, entering the circulation by imbibition, proves diuretic and diaphoretic. Speaking of the Rangoon Petroleum, Dr. Fleming† states that he has found more benefit from it than from the most costly Cajeput Oil. *In Paralytic Affections*, it has also proved serviceable. Externally applied it has been found useful in *Herpetic Affections and Psoriasis.*

2056. *In Gonorrhœa*, it has occasionally been substituted for Copaiba, in doses of ♏xx.—xxx., in emulsion.

2057. *In Cholera*, the following formula, forwarded by the Russian Commander-in-Chief in Circassia to Mr. Guthrie,‡ is stated to have proved highly efficacious in that country :—℞ Spt. Vin. Rect. Oviiss., Sal. Ammoniac. ʒj., Nitri depurati ʒj., Piperis ʒj., Aq. Regiæ f ʒss., Acet. Vini Oiss., Petrolei (Naphtha) f ʒss., Ol. Olivæ f ʒss., Ol. Menth. Pip. f ʒviiss., M. digere per horas xij. et cola. Dose, two teaspoonfuls every quarter of an hour. In England it did not succeed.

2058. PHLORIDZINA. Phloridzin, or Phlorydzine. ($C_{12}H_{24}O_{20}$, 4 HO.) A neutral, bitter, crystallizable principle which exists in the bark of the trunk and root of Apple, Pear, Cherry, and Plum trees. Discovered by M. De Koninck in 1835. Very sparingly soluble in water, readily so in alcohol, and in solutions of the alkalies, especially Ammonia.

Med. Prop. and Action. Tonic and anti-periodic. It may be given in pill or in solution, with aromatic Spirits of Ammonia.

Dose, gr. v.—gr. x.—gr. xv. three or four times a day.

2059. *Therapeutic Uses. In Intermittents*, it has been successfully employed by MM. De Koninck,§ Van Mons,‖ Mathysen,¶ and Lebaudy,** all of whom bore more or less strong testimony in favour of its anti-periodic powers. It appears, however, to have fallen into disuse, probably from the report of M. Léonhard,†† who pronounced it destitute of any febrifuge virtue. Attention has again recently been called to it by Dr. De Ricci,‡‡ who re-

* Beng. Dispensatory, p. 693.
† Asiatic Researches.
‡ Med. Times, vol. xviii. p. 126.
§ Ann. de Thérap., 1843, p. 203.
‖ Bull. Méd. Belge, May 1836.
¶ Ibid., Oct. 1835.
** Journ. des Connais. Méd., 1842.
†† Encyc. des Sci. Méd., May 1838.
‡‡ Dub. Quart. Journ. of Med. Sci., Aug. 1862.

commends a trial of it in every adult case where Quinine is not easily tolerated, and also in every case where young children require a tonic treatment, either in consequence of *Constitutional Debility, or from the debilitating effects of some previous illness*. It is, he remarks, much more easily taken than either Bark, Quinine, or Salicine, the bitter being of an agreeable kind, and changing into a sweetish taste with the flavour of apple. Even in large doses, he states that he has never known it to disagree, and that he has found it of great use when other tonics could not be taken. He found it most effectual in the *Atonic Dyspepsia* of delicate females, and well adapted for young children when recovering from *Hooping-cough, Fever*, &c. The force of his statements is much weakened by the fact, that in these latter cases, at least, he combined it with the syrup of the Phosphate of Iron and Manganese and with syrup of Iodide of Iron. He prescribes gr. v. three or four times a day for adults, and proportionably smaller doses for children.

2060. PHOSPHORUS. An elementary substance, usually obtained from bone-ash. Sp. Gr. 1·77. Eq. Wt. 32.

Med. Prop. and Action. Stimulant and aphrodisiac, in small doses. Irritant poison, causing inflammation of the stomach and bowels, in large doses. Death has been caused by gr. iss., and by gr. iij., but much larger quantities have been taken without serious symptoms ensuing. It acts as a powerful sudorific and diuretic. The fumes cause violent irritation of the mucous membranes of the air-passages, nostrils, and eyes; and persons exposed much to its vapour in manufactories are liable to necrosis of the lower jaw. Externally applied, it is a powerful irritant, and has been proposed as a substitute for the Moxa. The best form for internal use is an Etherial Tincture (4 parts of Phosphorus in 200 of Ether) or Phosphorated Oil (Phosphorus gr. x., Almond Oil fl. oz. j.). The dose of either of these formulæ is gutt. v.—x. in emulsion.

2061. *Therapeutic Uses. In Cholera*, Phosphorus has occasionally proved successful. Dr. Burgess* states, that in the epidemic of 1832, he found it effectual when every other remedy had failed, in several cases when the vital powers seemed exhausted, and the patient was in the lowest state of collapse. In these cases it seemed to act as a violent stimulant, principally through the nervous system, accelerating the circulation, and exalting the muscular irritability in the highest degree. It is best exhibited in Ether or oil, as directed above.

2062. *In Leprosy, Lupus, Psoriasis, and other inveterate Skin Diseases*, in which the skin seems to adapt itself to the morbid condition, Dr. Burgess† recommends Phosphorus as one of the most valuable medicinal agents we possess. It may be used either externally or internally. Externally, Camphorated Oil is the best vehicle; internally, it may be given in Ether or oil (*ut supra*). *In Pruritus Pudendi and other forms of Pruritus*, he

* Med. Gaz., Feb. 23, 1849. † Op. cit.

found it very successful. He used it in combination with Strychnine.

2063. *In Ramollissement of the Brain*, Dr. Winslow* states that small doses of Phosphorus have been found useful. The brain should at the same time be kept at rest, and the warm bath, rubefacients, &c., be employed. *In Epilepsy*, it was formerly employed, and it has of late years been again brought forward by Dr. Radcliffe.† Dr. Anstie‡ tried it in two severe cases, and though it failed to affect the fits, the patients much improved in general health, and the sense of nervous depression was greatly relieved. He regards it as well worthy of further trial.

2064. *In Impotence*, occurring in old debilitated subjects, it is reported to be efficacious. It formed the basis of the famous nostrum of Kæmper. Its aphrodisiac effect is said soon to pass off, and its habitual use induces debility, stupor, and precocious old age. (Ryan.)

2065. *In Phthisis*, Phosphorus was tried in twenty-five cases by Dr. Cotton,§ who draws the following conclusions:—1. Phosphorus exerts no specific action upon consumption. 2. In some cases it seems to act as a tonic and stimulant, but its influence in this respect is inferior to many other remedies of a similar kind. 3. Although in many cases it seems to agree very well with those who take it, yet it sometimes occasions loss of appetite, nausea, and abdominal derangement.

2066. ACIDUM PHOSPHORICUM DILUTUM. Dilute Phosphoric Acid. Phosphoric Acid dissolved in Water. It contains between 9 and 10 per cent. of tribasic Phosphoric Acid, 3 HO, PO_5, in solution in Water. Sp. Gr. 1·08.

Med. Prop. and Action. Tonic, refrigerant, and aphrodisiac. In large doses, it acts as a powerful stimulant of the nervous and vascular systems: it is absorbed into the system, and has been detected in the blood; it also communicates a peculiar odour to the breath. In very large doses it is an irritant poison; convulsions and insensibility preceding death. (See also PHOSPHORUS.) Dr. Pavy's ‖experiments with this acid, showing that when injected into the duodenum it is capable of inducing a diabetic state of the urine, are both important and interesting.

Dose, ♏x.—xl., diluted in sugar and water.

2067. *Therapeutic Uses. In Typhus and Typhoid Fever*, it has been given with advantage. In the epidemic fever which appeared at Stockholm in 1842, Prof. Huss¶ employed Phosphoric Acid in all the cases which came under his notice. f℥iij. of the acid were diluted with f℥xij. of Decoct. Malvæ; and

* Journ. of Psych. Med., July 1849.
† Epileptic and Convulsive Affections, &c., Lond. 861.
‡ Med. Times and Gaz., April 5, 1862.
§ Med. Times and Gaz., July 6, 1861.
‖ Guy's Hospital Reports, 1861, vol. vii.
¶ Dub. Journ., Sept. 1845.

of this, one or two dessert-spoonfuls were given every two hours. He commenced its use when the pulse began to lose its fulness, and the first sound of the heart became short like the second.

2068. *In Scrofula*, Mr. Balman* states that he has seen Phosphoric Acid exercise a very beneficial effect in a large number of cases; and that he does not hesitate to assert that, as a therapeutic agent, it will be found in no degree inferior to Iodine, Cod Liver Oil, or Barium. "Its effects," he observes, "are sometimes very marked in those obstinate forms of *strumous conjunctivitis* which sometimes resist for a long period every kind of treatment, and at other times will quickly disappear under the influence of some simple local application; but which perhaps will as speedily return under the slightest exciting cause." In *Intermittent Forms of Ophthalmia, arising in a Scrofulous Constitution*, he found this medicine of especial service, not only in completely removing the disease, but also in preventing its recurrence. He prescribes it in doses of ♏v. of the dilute acid, gradually increased to ♏xx. or more, in infusion of Calumba. Thus given, it may be continued for any length of time without producing any unpleasant effects. He is undecided whether its beneficial effects are confined to its tonic influence, or whether they exercise some more specific influence upon the blood and system generally.

2069. *In Dropsy*, it has been employed as a stimulant tonic, in purely chronic and asthenic cases. It is of very doubtful value as an internal remedy; but it has been attended in some cases with apparent benefit, diluted with oil and used as an embrocation on the abdomen.

2070. *In Calculous Disease*, Phosphoric Acid has occasionally been employed with a view of correcting alkalescence of the urine. In the phosphatic diathesis, it was administered by Berzelius,† in increasing doses, but without effect, until it produced purging; after which the urine became rapidly acid, and deposited a lithic acid sediment. In a case related by Mr. Balman,‡ after the Nitric, Hydrochloric, and Acetic acids had been administered successively without effect, he found the Phosphoric Acid of great service, acting as a tonic to the digestive powers, and diminishing the quantity of ropy mucus in the urine.

2071. *In Diabetes*, Phosphoric Acid, largely diluted, assuages the inordinate thirst so common in this disease, more effectually than any other acidulated drink. (Paris.§)

2072. *In Cardialgia*, Dr. Todd states that he has employed Phosphoric Acid with excellent effect.

* Med. Gaz., Aug. 22, 1851.
† Trait. de Chimie, vol. vii. p. 414.
‡ Med. Gaz., Dec. 1, 1848.
§ Pharmacologia.

2073. *In Caries*, Phosphoric Acid, diluted with eight or ten parts of water, was locally applied by Lentin,* under the idea that the disease arose from a deficiency of Phosphoric Acid in the bone. In some instances it appears to have been beneficial. It is also supposed to exert an influence on the growth of *Osseous Tumours*.†

2074. PHYSOSTIGMA VENENOSUM. The plant producing the Ordeal Bean of Calabar. A large perennial climber. *Nat. Ord.* Leguminosæ, inhabiting Old Calabar.

Med. Prop. and Action. The bean or seed, the *Ordeal Bean of Old Calabar*, is an energetic poison. Administered internally, it appears to exert a sedative influence on the spinal cord, producing paralysis of the lower extremities, and death by asphyxia; or, if given in large doses, death by paralysis of the heart.‡ Prof. Christison§ tried it on his own person in minute quantities: the prominent symptoms were vertigo, a sense of extreme prostration, and syncope, whilst the action of the heart and circulatory system was rendered very weak, tumultuous, and irregular; the mental faculties, however, were unimpaired. Further experiments on rabbits, &c., demonstrated its powerfully poisonous qualities. Recently a number of children at Liverpool have been poisoned, and one has died, from eating the Beans. A full detail of these interesting cases is furnished by Dr. Cameron.‖ It is not to its poisonous effects, however, that we would call attention in this place, but principally to the extraordinary power possessed by its active principle, in the form of alcoholic extract, of inducing, when locally applied, contraction of the iris and ciliary muscle. This property of inducing contraction of the pupil, and restoring the power of accommodation, has rendered it a most useful application in certain *Diseases and Injuries of the Eye*. Thus, it is of especial value when the power of accommodation is lost from paralysis, or after the use of Atropine in ophthalmoscopic examinations. Dr. Argyll Robertson,¶ from experiments made with the Extract, draws the following conclusions:—1. Its application induces a condition of short-sightedness, which may be relieved by the use of concave glasses. 2. It occasions contraction of the pupil of the eye to which it is applied, and sympathetic dilatation of the pupil of the other eye. 3. Atropine possesses the power of counteracting its effects, and *vice versâ*, *i. e.* it is capable of overcoming the effects produced by Atropine. The first symptom noticed after its application is dimness of distant vision, and shortly after the pupil becomes contracted. These symptoms subside in the same order,—first the derangement of accommodation, and then the affection of the pupil. The observations of Drs. Fraser and Stewart, Messrs. Bowman, Wells, and others, confirm the statements regarding its anti-mydriatic powers. Mr. Daniel Hanbury** has published two excellent papers on this Bean, from which it appears, (1) that it will yield upwards of 4·5 per cent. of Extract, and that probably more may be obtainable, as the residuum after its extraction continues to possess poisonous properties; (2) that the Extract in aqueous solution is a turbid, inelegant form, and likely soon to spoil. It has been prepared of several strengths, so that one minim may represent ¼, 1, 2, or 4 grains of the Bean; (3) Glycerine is a preferable menstruum, less irritating to the eye, and not liable to change by keeping; (4) it may be advantageously applied by means of bibulous paper or gelatine, in the manner advised by Messrs. Streatfeild and Hart for Atropine (q. v.). It has been prescribed

* Quoted by Pereira, vol. i. p. 349.

† Garrod, Ess. Mat. Med. and Therap., p. 35.

‡ Ibid., p. 189.

§ Pharm. Journ., 1855, vol. xiv. p. 472.

‖ Med. Times and Gaz., Oct. 18, 1864, p. 406.

¶ Edin. Med. Journ., March 1863.

** Pharm. Journ., June and July, 1863.

internally in certain affections of the nervous system. A case of *Traumatic Tetanus*, in which the Extract of Calabar Bean dissolved in gelatine was administered, is recorded by Mr. Holmes Coote.* The patient took in all 14 minims of Bell and Co.'s Extract, equal to 56 grains of the powder. He ultimately recovered, but it was doubtful whether recovery could be attributed to the Bean. The powdered Bean has also been prescribed with apparent benefit by Professor Harley,† of University College, in *Chorea*, in doses of gr. iij., gradually increased to gr. vj.

Dose of Powder, gr. j.—gr. iij.—gr. vj. One drop of a solution of the Alcoholic Extract may be dropped into the eye, for the purpose of producing contraction of the pupil.

2075. Pimenta. Pimento. All-Spice. The unripe fruit of Eugenia (Myrtus) Pimenta. *Nat. Ord.* Myrtaceæ. *Linn. Syst.* Icosandria Monogynia. *Hab.* West Indies, &c.

Med. Prop. and Action. Stimulant and carminative. Its activity depends on a volatile oil (Oleum Pimentæ). The distilled water (Aqua Pimentæ) is much used as a vehicle for other medicines.

Offic. Prep. 1. Aqua Pimentæ (Pimento bruised oz. xiv.; Water Cij. Distil Cj.). Dose fl. oz. iss.—fl. oz. ij.

2. Oleum Pimentæ (distilled from the fruit in England). Dose ♏ij.—♏vj.

Dose of Pimento in powder, gr. v.—gr. xxx.

Therapeutic Uses. Similar to those of Carum Carui.

2076. Piper Longum. The Unripe Fruit of Piper Longum or Chavica Roxburghii. Long Pepper. *Nat. Ord.* Piperaceæ. *Linn. Syst.* Diandria Trigynia. *Hab.* The East Indies and some other tropical countries.

Med. Prop. and Action. Similar to Piper Nigrum, but much more acrid.

Dose, gr. v.—gr. xx.

Therapeutic Uses. Similar to those of Piper Nigrum.

2077. *In Beriberi*, the following formula was found useful by the late Dr. Herklots, of the Madras Service:—℞ Piper. Long. ʒiv., Piper. Nig., Rad. Zingib. āā ʒss., Arracci fʒxx.; digest for seven days and strain. Dose, fʒj., twice or thrice daily. This, in combination with Guaiacum internally, and stimulating frictions, he found to remove the symptoms in some mild cases; but, in general, the disease requires far more active treatment. It is a famous Mussulman nostrum.‡

2078. Piper Nigrum. The dried unripe berries of Piper Nigrum. Black Pepper. *Nat. Ord.* Piperaceæ. *Linn. Syst.* Diandria Trigynia. *Hab.* East and West Indies, Sumatra, Borneo, Siam, &c. Chiefly imported from the West Indies.

Med. Prop. and Action. The berries (*off.*) are hot, stimulant, and carminative, in doses of gr. v.—x. Pepper is also regarded as anti-periodic: this attribute is as old as the time of Celsus.§ When taken internally, it acts as a

* Lancet, March 26, 1864.

† Med. Times and Gaz., Jan. 16, 1864.

‡ See Malcolmson on Beri-beri, op. cit.

§ Lib. iii., cap. 12.

stimulant, increasing the arterial action, the cutaneous and other secretions. On the mucous membranes of the rectum and the genito-urinary organs, it seems, in common with Cubebs, to exercise a specific action. In large doses it produces inflammation of the stomach, and acts as an irritant poison. It contains three active principles:—1, A crystalline principle, Piperine (see Piperina); 2, a volatile oil, on which the odour and taste of the drug depend; 3, an acrid resin. Under each of these principles intermittent fevers have been said to have been cured; but, on the other hand, they have each, when given singly, been found to fail: it appears probable that none of them, given singly, is so uniform in its operation as when they are administered together in the form of Pepper. Externally, ground Pepper is irritant, and is occasionally added to sinapisms, to increase their activity. The volatile oil is sometimes employed as a rubefacient. White Pepper (Piper Album) is merely Black Pepper deprived of its outer integument.

Offic. Prep. Confectio Piperis (Powdered Black Pepper oz. ij.; Powdered Caraway oz. iij.: Clarified Honey oz. xv.). A substitute for Ward's paste. Dose, gr. xxx.—gr. cxx. and upwards.

Dose of Black Pepper, gr. v.—x., or more.

It is contra-indicated in inflammation of the rectum and intestines.

2079. *Therapeutic Uses. In Intermittent Fevers*, Pepper, bruised and macerated in spirit and water, has long been a popular remedy in the East and West Indies. Mild, uncomplicated cases occasionally yield to its use; but most frequently it fails to produce any benefit. It should be given immediately before an expected paroxysm. Dr. Pereira quotes several German authorities, who testify to the febrifuge powers of this remedy.

2080. *In Hæmorrhoids occurring in old Persons, or proceeding from debility, and also in a relaxed condition of the Rectum, producing occasional Prolapsus*, the administration of Conf. Piper. in doses of gr. lx.—gr. cxx., and persevered in for three or four months, often affords great relief, and sometimes effects a cure. It is only applicable to chronic cases, when no inflammation is present, and in weak leucophlegmatic habits. An occasional aperient should be given to prevent its accumulating in the bowels. It is advised by Sir B. Brodie.*

2081. *In Cholera*, the natives of India often prescribe an infusion of recently-roasted Black Pepper. Dr. Ainslie† states, that he has known it put a stop to the vomiting, when many other remedies had failed.

2082. *In Relaxation of the Uvula*, a watery infusion forms a very useful gargle.

2083. *In Shortsightedness*, Dr. Turnbull‡ speaks highly of the value of a concentrated tincture of Pepper (1 part of Pepper to 2 of Spirit) applied to the forehead. (See Zingiber.)

2084. *In Gonorrhœa*, it has in some instances been effectually substituted for Cubebs.

2085. *In Tinea Capitis*, an ointment composed of oz. iv. of

* Lond. Med. Gaz., 1834-5, p. 747.
† Mat. Med. of Hindostan, p. 34.
‡ Med. Gaz., Nov. 15, 1851.

powdered Black Pepper and lb. j. of Lard, has been well spoken of as a stimulant application.

2086. PIPERINA. Piperine. A crystalline nitrogenized feeble base found in Piper Nigrum, Piper Longum, and probably in other plants of the same order. *Chem. Form.* $C_{34}H_{19}NO_6$.

Med. Prop. and Action. Febrifuge (?) and tonic.

Dose, gr. vj.—x., twice or thrice daily.

2087. *Therapeutic Uses. In Intermittent Fevers*, Piperine has been employed with varying success. Amongst those who speak highly of its efficacy is Dr. Hartle,* of Trinidad, who states that, in the intermittents of that island, he found Piperine eradicate the disease when Quinine had failed, although the latter had been given in ten-grain doses, frequently repeated. He states that, in all cases of long standing (many of them complicated with enlargement of the liver and spleen), he began as soon as the sweating stage was established, by giving gr. iij. of Piperine every hour, until gr. xviij. had been taken; and, on the following day, when the intermission was complete, he gave the same quantity every three hours. In *every* case, he states, it succeeded in checking the paroxysm, and, as soon as this was accomplished, he gave the following pills:—℞ Pil. Hydrarg. gr. j., Piperinæ, Quinæ Sulph. āā gr. ij., M. ft. pil. ter in die. In other cases he employed it without combining it with Quinine, and with decidedly beneficial effects. He recommends gr. xxxvj. to be given in twenty-four hours; and, though powerfully carminative, stimulating, and febrifuge, he never saw it affect the sensorium in any degree. Dr. Blom† also bears witness to its efficacy, and states that he prefers it to either Quinine or Salicine in persons of phlegmatic temperaments, in whom a sluggish circulation and feeble digestion are observed. In the intermittents of Italy, it was successfully employed by Meli, Gordini,‡ and others. On the other hand, Soubeiran§ found it fail, and O'Shaughnessy‖ states, that in no one instance has he found it of the least utility, although it was given in all doses, from one to thirty grains. These differences may be partially explained, perhaps, by the different degrees of purity of the remedy: if impure, and combined with a portion of the resin, its activity appears to be increased.

2088. PIX BURGUNDICA. Pix Abietina. Burgundy Pitch. A resinous exudation from the stem of Abies excelsa (Pinus

* Edin. Med. Surg. Journ., Jan. 1841.

† Ibid., Oct. 1, 1837.

‡ Revue Méd., 1825, t. iii. p. 313.

§ Traité de Pharm., t. ii. p. 46.

‖ Beng. Dispensatory, p. 527.

Abies), the Spruce Fir, melted and strained to free it from impurities. Imported from Switzerland.

Med. Prop. and Action. Burgundy Pitch is employed solely as a plaster; and as such, acts as a stimulant and rubefacient. It should be evenly spread on a piece of leather, and should always be employed fresh. By adopting the usual plan of keeping Burgundy Pitch in a ladle, and remelting the same portion repeatedly, it loses much of its irritant qualities, and consequently of its efficacy. It will remain adherent to the cuticle for several weeks. In some persons it produces an intolerable itching; and in others, a pustular eruption, which renders it necessary to remove it in a few hours after its application.

Offic. Prep. Emplastrum Picis (Burgundy Pitch oz. xxvj. ; Common Frankincense oz. xiij. ; Resin oz. ivss. ; Yellow Wax oz. ivss. ; Expressed Oil of Nutmeg oz. j. ; Olive Oil fl. oz. ij. ; Water fl. oz. ij. Add the Oils and Water to the Frankincense, Burgundy Pitch, Resin, and Wax, previously melted together ; then constantly stirring, evaporate to a proper consistence).

2089. *Therapeutic Uses. In Chronic Coughs, Chronic Bronchitis, and other Pulmonary Affections,* a Burgundy Pitch plaster often proves highly serviceable, not only by protecting the chest from feeling the atmospheric changes, but by acting as a rubefacient and counter-irritant.

2090. *In Lumbago and Chronic Rheumatism,* the application of one of these plasters over the seat of pain often proves very beneficial, and affords great comfort to the patient.

2091. Pix Liquida. Vegetable or Liquid Tar. A Bituminous Liquid obtained from the wood of Pinus Sylvestris and other pines by destructive distillation. *Source,* Russia and N. America. By distillation, it yields Pyroligneous Acid and Oil of Tar; the residuum is Pitch. Numerous hydrocarbons and oxy-hydrocarbons are obtained from Tar. Amongst them are Paraffine, Creosote, Eupion, Kapnomor, Pittacal, Picamar, and Cedriret.

Med. Prop. and Action. Slightly stimulant and diuretic. Its effects are very similar to those of Turpentine, but it is milder in its operation, and communicates the odour of Tar, instead of that of violets, to the urine. The vapour, when inhaled, acts as a stimulant and irritant of the lining membrane of the air-passages. Tar Water is prepared by shaking together one part of Tar with four of Water. The Water takes up the soluble portions of the Tar. Applied externally to ulcers, Tar acts as a mild stimulant, and often induces a healthy action. The usual strength employed is Tar, and suet, in equal parts, melted together and strained. The *Glycerole of Tar* is proposed by Mr. Brady* as superior to the ordinary ointment. It is formed by warming Glycerine (fl. oz. vj.), stirring in powdered Starch (gr. cxx.), adding Tar (fl. oz. vj.), and raising the temperature of the mixture rapidly to boiling point. Strain through a cloth, if necessary, and stir whilst cooling.

Dose of Tar, ℥xxx.—fl. drm. j., or more, made into pills with flour. The dose of Tar Water is fl. oz. j.—fl. oz. iv.

2092. *Therapeutic Uses. In Phthisis,* the vapour of Tar was first advised by Sir A. Crichton† in 1823. He directs the

* Pharm. Journ., Sept. 1862.

† Obs. on Pulmonary Consumption, 1823.

vapour to be obtained by heating Tar over a spirit-lamp, a small quantity of the sub-carbonate of potash being previously added, to neutralize any pyroligneous acid which the Tar may contain. The heat should be moderate, and the vapour equally diffused over the chamber. Hufeland* also bears testimony to its value; and Dr. Morton,† of Philadelphia, states, that no remedy which he used was so successful as Tar. In other hands, however, it has proved of little, if any value. Thus, Dr. J. Forbes‡ gave it a fair trial, and reported unfavourably of it; and Sir C. Scudamore§ states, that he has tried it without any satisfactory results.

2093. *In Chronic Bronchitis*, Dr. Dunglison‖ found great benefit from the internal use of the following formula:—℞ Picis Liq. fʒj. digere in Aq. Dest. Oij. per dies viij., et cola. Dose, fʒviij.—fʒxij. daily, mixed with milk. This was one of the many affections in which Bishop Berkeley¶ found Tar-water so effectual. The vapour of Tar may also prove serviceable.

2094. *Habitual Constipation* may be often effectually removed by Tar, in doses of gr. v.—x. every night. It requires to be persevered in for some time. Prof. Simpson speaks favourably of it, and Bishop Berkeley relates several surprising cures by the use of Tar-water.

2095. *In Typhoid Fever*, Dr. Chapelle** regards Tar-water as incontestably the most efficacious of remedies. To ʒij. of Tar he adds Oij. of boiling water; after standing a few hours, the patient commences to drink it, as much at a draught as he can, and filling up with ordinary water, so that the same quantity of Tar will last during the whole treatment. He likewise employs injections, prepared by rubbing up the yolk of one or two eggs with a tablespoonful of liquid Tar, and adding Oj. of warm water. This serves for two injections, of which six, eight, or even ten should be administered daily.

2096. *Cutaneous Diseases. In Lepra, Psoriasis, and Porrigo*, Tar-water internally has proved successful in the hands of Dr. Romberg.†† *In Eczema, Impetigo, Acne Punctata, and Prurigo Senilis*, it has been used successfully by Mr. Wetherfield.‡‡ Alibert speaks highly of its value in this class of diseases; and M. Emery's§§ report on it is highly favourable. M. Emery employed it externally in the form of ointment (one-third to one-fourth of Tar), in above 1500 cases, and in five-sixths it effected

* Obs. on Pulmonary Consumption, 1823, p. 243, et seq.

† Illustrations of Pulmonary Consumption, &c., p. 348.

‡ Med. Phys. Journ., Oct. 1822.

§ On the Inhalation of Iodine, &c., 2nd Ed., p. 5.

‖ Practice of Medicine, 1844..

¶ Siris. See Berkeley's Works by Rev. G. N. Wright, vol. ii. p. 308, et seq.

** Ranking's Abstract, xxiii. p. 23.

†† Med. Times, vol. xvi. p. 497.

‡‡ Lancet, June 17, 1846.

§§ Brit. and For. Med.-Chir. Rev., 1849.

a rapid cure. *In Psoriasis*, the external use of Tar was combined with the internal use of Arsenic, and of these 200 were cured in two months. *In Syphilitic Lepra*, it is also favourably spoken of by Dr. R. B. Todd.* Internally, Tar may be given in the form of Tar-water or in gelatinous capsules. Externally, it may be applied in the form of ointment (*ut supra*). It requires to be steadily persevered in. *In Ringworm*, the local application of the ointment is often an effectual cure.

2097. *In indolent and foul Ulcers*, Tar Ointment (*ut supra*) acts advantageously as a gentle stimulant, induces a healthy action, and hastens the healing process. MM. Corne and Demaux† speak highly of the value of a powder made by triturating from one to five parts of Common *Coal Tar*, with 100 parts of Plaster of Paris, as a deodorizing and disinfecting application to *foul and gangrenous Ulcerations*. The powder is sprinkled over the sore, or else the powder is made into an ointment with oil.

2098. Pix Nigra. Pix Arida. Black Pitch. The altered resin remaining in the still, after the distillation of Pix Liquida.

Med. Prop. and Action. The same as Pix Liquida. Externally, it is employed in the form of ointment (Black Pitch, Wax, and Resin ää gr. dxl., Olive Oil fl. oz. ij. ; melt, and express through linen).

Dose, gr. x.—gr. lx. in the form of pill.

2099. *Therapeutic Uses. In Piles*, the internal use of Pitch, in doses of gr. vij., night and morning, is strongly advocated by Dr. Wardleworth.‡ He found it particularly useful in Piles occurring during pregnancy.

2100. *In Ichthyosis*, Pitch, in doses of gr. x.—ʒj., was successfully employed by Bateman.§ *In Porrigo, Diseases of the Scalp, in Lepra, Psoriasis, and some other obstinate Skin Diseases*, the ointment (*ante*) proves often very useful. It may also be given internally, as it appears to exercise a considerable influence on the cutaneous secretion. *To foul and indolent Ulcers*, the ointment is also a good stimulant application.

2101. Plocaria Candida. Gigartina Lichenoides. Fucus Amylaceus. Ceylon Moss. *Nat. Ord.* Algæ. *Source*, Ceylon and the Eastern Archipelago.

Med. Prop. and Action. Demulcent and nutritive, containing about 54 per cent. of vegetable mucilage or jelly. The decoction and jelly are good forms for its administration. O'Shaughnessy, who introduced its use, directs the Moss to be first soaked for some hours in cold rain-water, then dried in the sun, and ground to a fine powder. Of this ʒij.—ʒss. is to be boiled in Oj. of water, strained, and flavoured with lemon-juice and sugar. The proportions for the jelly are ʒss. of the powdered Moss and Oij. of Water ; to be boiled for

* Med. Gaz., May 16, 1851.
† Comptes Rendus, July 18 and 25, 1859.
‡ Lancet, 1841-2, vol. ii. p. 750.
§ Synopsis of Cut. Dis. p. 53.

half an hour, or until, on cooling, it forms a gelatinous mass; flavour to the taste.

Therapeutic Uses. Similar to those of Chondrus Crispus. It proves particularly serviceable in convalescence after fevers and debilitating diseases.

2102. PLOCARIA (Gigartina) HELMINTHOCORTON. Corsican Moss. *Nat. Ord.* Algæ. *Hab.* the islands of the Mediterranean.

Med. Prop. and Action. Anthelmintic, diuretic, and diaphoretic. It is also very nutritive, containing about 60 per cent. of vegetable mucilage or jelly.

2103. *Therapeutic Uses. Against Lumbrici or Round Worms,* it is stated to be very efficacious, in doses of gr. xx.—gr. cxx. of the powder, with honey. It may also be given in decoction (gr. ccxl.—gr. cclx. to Aq. Oj.) in doses of fl. oz. iss., thrice daily.

2104. *In Cancer,* it is advised by Mr. Farr; but it appears to be ineffectual.

2105. PLUMBAGO EUROPÆA. Leadwort. *Hab.* Southern Europe.

PLUMBAGO ROSEA. *Hab.* the East Indies.

PLUMBAGO ZEYLANDICA. *Hab.* the East Indies.

These three plants (*Nat. Ord.* Plumbagineæ) are powerful irritants when applied externally. Their activity depends upon a crystalline principle, *Plumbagin.*

Med. Uses. As a vesicant or blister, these plants, but particularly P. Rosea, have been tested in above 300 cases by O'Shaughnessy, who regards them as an effectual and cheap substitute for Cantharides, over which they possess the advantage of never producing strangury, nor any other form of irritation of the urinary organs. The bark should be rubbed into a paste with water and a little flour or congee; it occasions pain in about five minutes, which increases in severity till, in a quarter of an hour, it is equal to that of Cantharides. If the paste be removed in half an hour, the pain is soon allayed; and in a period of twelve or eighteen hours a large uniform blister, full of serum, is occasioned. The blistered surfaces heal readily, without unpleasant ulceration. (O'Shaughnessy.*)

2106. PLUMBUM. Lead. In its metallic state, it is generally considered inert, although persons who are long exposed to its influence, as by handling it, become affected with lead poisoning. Its salts exercise a powerful influence on the animal economy. It is the basis of several important preparations.

2107. *The Physiological Effects of the Salts of Lead* are thus ably summed up by Dr. Pereira:†—"In small doses they act on the alimentary canal as astringents, checking secretion, and causing constipation. After absorption, the constitutional effects of lead are observed, the arteries become reduced in size and activity, the pulse becomes smaller, and frequently slower also; the temperature of the body is diminished, and sanguineous discharges, whether natural or artificial, are frequently checked, or even completely stopped. This constringing and sedative effect seems extended to the secreting and

* Beng. Dispensatory, p. 509. † Mat. Med., vol. i. p. 783.

exhaling vessels; the discharges from the mucous membranes, the exhalations from the skin, and the urine, being diminished in quantity. Thus we observe dryness of the mouth and throat, greater solidity of the alvine secretions, diminution of the bronchial secretion, and of cutaneous exhalation. When the system becomes impregnated with the metal, it occasions a peculiar blue or leaden discoloration of the gums, mucous membrane of the mouth, and teeth. Salivation, and a bluish colour of the saliva, have also been observed occasionally. In very large doses, some of the salts of Lead, the acetate for example, act as irritant and caustic poisons, giving rise to the usual symptoms indicative of gastro-enteritis." The diseases produced by exposure to the influence of Lead or its preparations (as in painting and other trades), or by a large and continued use of plumbaceous salts, are,—1, Colic; 2, Metallic Rheumatism; 3, Paralysis; 4, Disease of the Brain, called Encephalopathy. Dr. A. T. Thompson regards the carbonate as the only poisonous salt of Lead, and although the opinion has not received general assent, it is certain that much larger doses of the Acetate of Lead can be given internally with safety, if combined with the use of Acetic Acid (thus preventing its conversion into a carbonate), than if given without it. It is eliminated from the system by the urine, the perspiration, the milk, and probably by the bowels. Mr. Blake* observes that the acetate alters the physical character of the blood, no perfect coagulation taking place when it has been injected into the veins.

2108. *The post-mortem appearances* in one case of poisoning by Goulard's Extract, are described by Christison. The lower end of the gullet, the whole stomach and duodenum, a part of the jejunum, and the ascending and transverse colon, were greatly inflamed, and the villous coat of the stomach appeared as if it had been macerated. The stomach contained six ounces of a reddish brown fluid, which yielded lead globules, when the residue was subjected to reduction. Mr. Blake found, in animals killed by injecting the salts into the veins, that the lungs were engorged and hepatized; livid spots were observed on their surface, and the air-passages were either impermeable, or filled with a frothy fluid.

2109. PLUMBI ACETAS. Acetate of Lead, called also the Proto-acetate, the Super-acetate, or Sugar of Lead. $PbO, C_4H_3O_3 + 3\,HO$. *Comp.* Oxide of Lead, 58·95, Acetic Acid 26·84, Water 14·21, in 100 parts; or 1 Eq. Oxide of Lead = 112, + 1 Acetic Acid = 51, + 3 Water (3 + 9) = 27 = 190, Eq. Wt.

Med. Prop. and Action. Internally, it is astringent and sedative; diminishing the secretions, and reducing the activity of the capillary system (see *Phys. Effects, ante*). Externally, in solution (gr. xxx.—gr. lx. ad Aq. fl. oz. vj.), it is used as a lotion. As a collyrium, it should not be employed when ulcers of the cornea exist, as it is apt to cause a permanent white cicatrix.

Offic. Prep. Pilula Plumbi cum Opio (Acetate of Lead in fine powder grs. xxxvj.; finely-powdered Opium grs. vj.; Confection of Roses grs. vj.). Eight grains of the mass contain 1 gr. of Opium. Dose, gr. iv.—gr. viij.

Dose of Acetate of Lead, gr. ½—gr. v.

2110. *Obs. on its Use.* 1. In order to prevent the Acetate being converted into a carbonate, it is advisable to combine its use with dilute Acetic Acid, which can be taken in the form of draught, after each dose of the Acetate.

2. It should be given in the form of pill. It is usually combined with Opium, an unchemical but efficacious formula. Common water should never be used as a vehicle.

3. It is one of the few astringents admissible during the presence of inflammation. It may be often safely and beneficially administered with

* Edin. Med. Surg. Journ., July 1, 1841.

Opium after depletion. Its action is then rather that of a sedative than of an astringent.

4. The Acid infusion of Roses, Sulphuric Acid, all the sulphates, as of Magnesia or Alum, as well as the phosphates and carbonates, should be prohibited during its use, as they interfere with its operation.

5. During its administration, if a blue line be observed on the gums (Dr. Burton* observed this in one case after giving five doses of gr. v. each), or if there occur gripings, tightness of the chest, or burning of the stomach, it should be discontinued. Large doses, however, may be given, particularly if conjoined with the use of Acetic Acid, without these effects being observed.

6. Lotions containing this salt are unadvisable in ulceration of the cornea, as they leave indelible opaque cicatrices.

Incompatibles. Mineral and Vegetable Acids, excepting the Acetic; Alkalies; hard Water; Strychnine; all vegetable infusions containing Gum; Liq. Ammon. Acet.

2111. *Therapeutic Uses. In Aneurism of the Aorta*, the Acetate of Lead, as an internal remedy, was first adopted by Dupuytren,† who successfully employed it in three cases. After a small bleeding, he administered a pill containing Plumb. Acet. gr. j. twice a day, and this was gradually increased, until gr. vj. were taken in twenty-four hours. In one case the swelling sensibly diminished in three weeks; and in six weeks the patient left the hospital wonderfully relieved. Other cases successfully treated are recorded by Dusol and Legroux.‡ Dr. Hope § also confirms the views of Dupuytren as to the value of the Acetate in these cases. He advises gr. ss. of the Acetate to be combined with gr. ss. of Opium, in the form of pill, to be repeated three or four times a day. Any gastric irritation may be removed by Castor Oil, diluents, &c. This treatment, however, must in most cases be considered only as an auxiliary to the important items of diet and regimen. The internal use of dilute Acetic Acid should be conjoined.

2112. *In Palpitations arising from Hypertrophy of the Heart*, M. Salgues‖ found that cases which resisted all other remedies were often greatly relieved by the Acetate of Lead, in doses of gr. ij.—vj. daily. Dr. Dunglison advises the following formula:—℞ Plumb. Acet. gr. ij., Morphiæ Acet. gr. ½, M. ter in die sumend.

2113. *In Dysentery*, the Acetate of Lead proves eminently serviceable. Dr. Symonds¶ says, that for moderating the sanguineous discharge, no medicine, in his opinion, is comparable with it. "It should not," he observes, "be administered before depletion has been freely employed; but we have ventured to give it earlier than we should have dared to use any other astringent, believing that it exerts a sedative action upon the inflamed parts, independently of its styptic property." In

* Med.-Chir. Trans., vol. xiii. art. v.
† Archiv. Gén. de Méd., 1839.
‡ Ibid., Sept. 1839.
§ Diseases of the Heart, 3rd Ed., p. 478.
‖ Rev. Méd.-Chirurg., 1847.
¶ Lib. of Med., vol. iv. p. 97.

numerous cases, particularly when the fæces are accompanied by a large discharge of mucus, I have found the Acetate, in doses of gr. iij.—iv. in combination with Dover's Powder (gr. iv. —v.), a remedy of great power and efficacy.

2114. *In Diarrhœa*, it also proves very effectual. Dr. Golding Bird* found it very successful, given in doses of gr. ij. after every motion, until the quantity taken amounted to ℥j. It is, however, seldom necessary to carry it to this extent. In two instances, the discharge was arrested after four or five doses: one was a case of Diarrhœa, supervening upon fever; in the other, it followed an attack of purpura. Dr. Theophilus Thompson† employed it in one-grain doses, in *Diarrhœa following Peritonitis*. It quickly arrested the discharge, improved the pulse, and restored the patient to health. Dr. Graves‡ considers that, *in Diarrhœa, accompanied by Tympanitis, in the advanced stages of Fever*, the Acetate of Lead must be our sheet-anchor. Dr. Copland§ states that he has derived benefit from it, in combination with Opium, in the *Diarrhœa attending the advanced stages of Phthisis*. *In the obstinate Diarrhœa of children*, Dr. Willshire‖ found the following formula highly serviceable; and I can speak from experience of the benefit which often results from a similar mode of treatment:—℞ Plumb. Acet. gr. ij.—iv., Conf. Aromat. ʒss., T. Hyoscyam. ℥v., Mucilag. Arab. f ʒij., Infus. Gentian. f ʒiss., M. ft. mist. Dose, f ʒj.—f ʒij. after each stool: f ʒj. may be given to a child a year old. Conjointly with this, Turpentine enemas and the hot bath should be employed. The value of this salt in Diarrhœa and Dysentery has been much insisted upon by Drs. Burridge,¶ Sweeting,** Batchelder,†† and others.

2115. *In Cholera*, the Acetate of Lead, in combination with Opium, was first proposed by Dr. Graves,‡‡ and, in many cases, decided improvement appears to have followed the use of his formula:—℞ Plumb. Acet. ℈j., Pulv. Opii gr. j., Conf. Ros. q. s. ft. pil. xij. Of these, one is given every quarter of an hour during the stage of collapse; and, in the other stages, every one, two, three, or four hours, according to the urgency of the case. Mr. Thom§§ states, that when the disease broke out in his regiment in India, he found the Acetate (gr. ij.—iij.), in combination with Morphia (gr. ⅛), a most valuable remedy in checking the profuse watery dejections. It is chiefly applicable to the premonitory stage, and may be advantageously combined with

* Lancet, March 7, 1846.
† Ibid.
‡ Clin. Lect., vol. i. p. 132.
§ Dict. Pract. Med., vol. i. p. 535.
‖ Lect. on Dis. of Children, Med. Times, vol. xvii. p. 251.
¶ Prov. Journ., June 25, 1851.
** Ibid., June 11, 1851.
†† New York Journ. of Med., July 1851.
‡‡ Clin. Lect., vol. i. p. 419.
§§ Med. Times, vol. xvi. 1847, p. 151.

Camphor or Capsicum. It is a remedy well worthy of confidence.

2116. *In Ulceration of the Stomach*, the Acetate is often effectual, allaying in a remarkable degree all the attendant symptoms, at the same time that it assists in establishing a healthy state of the ulcerated surface. It is best given in doses of gr. ij.—iij., combined with Morphiæ Acet. (gr. ¼ to ½).

2117. *In Incarcerated Hernia*, enemas containing the Acetate of Lead have been successfully employed by Dr. Huxthausen,* who relates three cases illustrative of its efficacy. The strength was ʒj. of the salt to fʒvj. of water. This quantity was found sufficient in the majority of cases, but it may be repeated if necessary. In each of the three cases above mentioned, spontaneous re-position took place within five hours. The efficacy of this treatment is further attested by Dr. Neuhold,† who relates several cases in which these enemas were attended with complete success. He found that from four to six enemas, each containing gr. x. of the Acetate, were the utmost required. They were repeated every two hours.

2118. *In Hæmorrhages, active or passive, whether proceeding from the Lungs, the Stomach, the Kidneys, the Nose, or other parts*, the Acetate of Lead (gr. ij.—iv.), combined with Opium (gr. ss.—j.), proves signally useful. The auxiliaries are the external application of cold, acidulated drinks, perfect rest, and antiphlogistic diet.

2119. *In Menorrhagia*, the Acetate of Lead with Opium, as advised in the last section, is one of the most efficacious remedies which we possess. Dr. Dewees'‡ estimate of it is very high. He advises the following formula:—℞ Plumb. Acet. ʒj., Opii gr. iv., M. ft. pil. xij. Of these, one is given every half-hour, hour, or two hours, according to the severity of the attack. Should this cause nausea or pain, he advises ʒj. of the Acetate, fʒj. of T. Opii in fʒij. of warm water, to be used as an enema; and it may be repeated if the first be soon returned. He adds, that taking a grain of the Acetate with a little Opium, three or four times a day, in the absence of the discharge, will be found highly useful.

2120. *In Uterine Hæmorrhage, with threatened Abortion*, the Acetate of Lead, combined with Opium, is in some cases of signal benefit. For selecting those cases in which it is advisable to administer it, see Opium, sect. *Abortion*. If the bleeding be attended with inflammatory action, and the patient plethoric, venæsection should precede the use of astringents. The Acetate

* Brit. and For. Med. Rev., Oct. 1838.

† Monthly Journ. of Med., Feb. 1849.

‡ On Diseases of Females, 6th Ed., p. 171.

may then be given in the doses and manner advised in Menorrhagia.

2121. *In Hæmorrhage from the Bowels in the advanced stages of Fever*, the cautious use of the Acetate of Lead and Opium with wine, are the only means on which we can rely with any confidence. (Dr. Graves.*)

2122. *In Chronic Bronchitis accompanied by profuse secretion of Mucus*, the Acetate of Lead is one of the most powerful remedies we possess. It is strongly recommended by Dr. Henderson,† who obtained the best results from its employment in doses of gr. ¼ to gr. j. eight or ten times a day for children, and gr. j. to gr. iij. for adults. The maximum daily dose is gr. xij. Dr. Theophilus Thompson‡ observes that, in all cases of inordinate secretion from the bronchial tubes, the Acetate has proved signally efficacious.

2123. *In the profuse Perspirations of Phthisis*, Fourquier considered that this salt exercised an almost specific effect when given in doses of gr. iv., gradually increased to gr. xij. daily; but Louis administered it thus in twelve cases, and in one instance only did it prove successful. Sir James Clark found it more useful in diminishing the quantity of expectoration.§ *In Asthenic Pneumonia*, especially when occurring in debilitated subjects, the Acetate is highly recommended by Prof. Christensen: he prescribes it generally with Quinine, gr. j. of each every two hours. If the cough is very violent, Opium is substituted for Quinine. Dr. Bramsen has been very successful with it in the *Pneumonia of Children*. Dr. Brandes obtained equally favourable results, and extols particularly its calming properties in this disease. He prescribed it in doses of gr. ½ for children of one to eight years of age.‖ This treatment is very favourably reported of by Dr. Leudet, of Rouen:¶ of forty cases treated by the Acetate, thirty-seven recovered and three died. It seems well worthy of further trials.

2124. *In Gonorrhœa, Gleet, and Leucorrhœa*, a solution of the Acetate of Lead (gr. vj. ad Aq. Dest. fl. oz. vj.) forms a useful sedative injection.

2125. *Diseases of the Eye.* In the treatment of *Granular Lids, Acute and Chronic Catarrhal Ophthalmia, in Scrofulous Affections of the Eye, Vascular Cornea, &c.*, the Acetate of Lead in substance has been successfully employed as a local application by Dr. Cunier, of Brussels, and by Dr. Buys.** It is directed to be reduced to an impalpable powder; a moistened pencil should

* Clin. Lect., vol. i. p. 267.
† Med. Gaz., May 8, 1840.
‡ Lib. of Med., vol. iii. p. 212.
§ See Cowan's Trans. of Louis on Phthisis, p. 353.
‖ Ranking's Abstract, 1859, vol. xxx p. 64.
¶ Brit. Med. Journ., Jan. 17, 1863.
** Ranking's Abstract, Dec. 1850.

then be dipped in it, and about a grain or a grain and a half applied to the inner surface of the lid. When the lid is touched, it should be kept everted until the tears have dissolved the Acetate, and those portions of the salt which escape solution should be taken off with the pencil. It is said to be particularly efficacious in the treatment of granular lids by Mr. Howard, of Montreal. *In Scrofulous Ophthalmia*,† he considers that the best local application, if no ulceration be present, is a saturated solution of the Acetate of Lead, which may be applied twice daily. It should be filtered previous to use.

2126. *In Erysipelas, Urticaria, Lichen, and other Skin Diseases*, the following lotion is favourably spoken of by Mr. Erasmus Wilson,‡ as a means of allaying the pain and irritation:—℞ Ammoniæ Carb., Plumbi Acet. āā ʒj., Aq. Rosæ fʒviij., M. ft. lotio.

2127. *In Epilepsy*, the Acetate of Lead was formerly advised by Drs. Rush,§ Eberle,‖ and others; but it has fallen into disuse, most probably from its inferiority to other metallic remedies.

2128. Plumbi Carbonas. Carbonate of Lead. $2\,(PbO,\,CO_2) + HO,\,PbO$.

Med. Prop. and Action. A poisonous salt, very seldom exhibited internally. Externally applied, it is a local sedative and astringent. It is sometimes mixed with starch, and dusted on the surface, in the *Excoriations of Children* and *fat persons*, or used in the form of ointment *to excoriated Surfaces, Burns, and Ulcers*; but its absorption produces poisonous effects, and there are many more safe and equally efficacious remedies. Dr. A. T. Thompson considers that it is the only salt of Lead which causes colic; and although this opinion may be disputed, there is no doubt that it is more liable to produce poisonous effects than the Acetate. It has been proposed as a remedy in *Phthisis* by Dr. Beau.¶ He advises it in small doses till signs of lead poisoning begin to show themselves.

Offic. Prep. Unguentum Plumbi Carbonatis (Carbonate of Lead in fine powder grs. lxiv.; Simple Ointment oz. j.).

2129. Plumbi Chloridum. The Chloride of Lead. PbCl. A caustic and astringent, solely used externally, in solution (gr. lx. ad Aq. Oj.) or ointment (gr. xxx.—gr. lx. ad Ung. oz. j.) to *Cancerous and Phagedenic Ulcerations*. In the former it is favourably spoken of by Mr. Tuson.**

2130. Plumbi Iodidum. The Iodide of Lead. PbI. A compound of Lead 45·21, Iodine 54·78, in 100 parts; or 1 Eq. Lead = 104 + 1 Iodine = 126 = 230, Eq. Wt.

* Pathology of the Eye, p. 378.
† Op. cit., p. 299.
‡ Diseases of the Skin, p. 159, et seq.
§ Philadelph. Med. Mus., vol. i. p. 60.
‖ Lond. Med. Repos., vol. viii. p. 178.
¶ Gaz. des Hôpitaux, 1859, No. 58.
** Lancet, Jan. 13, 1844.

Med. Prop. and Action. Deobstruent and alterative. Externally, it may be applied in the form of ointment.

Offic. Prep. Unguentum Plumbi Iodidi (Pharm. Lond.) (Iodide of Lead ℥j.; Lard ℥viij. Rub them together).

Dose of Iodide of Lead, gr. ¼—gr. ij.

2131. *Therapeutic Uses. In Scrofulous Enlargement of the Glands*, MM. Cottereau and De Lisle, who introduced the use of this remedy, in 1831, state that it is the most efficacious of all the salts of Iodine; that it promises the most prompt and certain action; and that it is, moreover, free from the inconvenience of creating cutaneous inflammation. Velpeau employed this salt in three cases with unequivocal benefit. It should be used externally and internally. Occasionally it produces gastric irritation.*

2132. *In Scirrhus of the Mamma*, Lisfranc† states, that the Iodide of Lead ointment (℥j.—Adipis ℥j.) has, in his practice, been employed with decided advantage.

2133. *In Chronic Enlargement and other Affections of the Spleen*, it has proved highly useful. Sir Ranald Martin‡ states, that he has derived great benefit from its internal use, and that with it he cured the largest spleen he ever saw in Bengal. He advises the following formula:—℞ Plumb. Iod. ℥ss., Conf. Ros. q. s. ft. pil. cxliv. Of these, one is to be given night and morning, increasing their number gradually.

2134. *In the advanced stages of Porrigo or Tinca Capitis*, Dr. Neligan§ advises the Iodide of Lead ointment (℥j.—Adipis ℥j.) as a local application. Internally, he prescribes, at the same time, the Iodide of Arsenic. (See that article.)

2135. LITHARGYRUM. Litharge. PbO. Plumbi Oxidum. Oxide of Lead.

PLUMBI OXIDUM RUBRUM. Red Lead. Pb_3O_4. Minium.

PLUMBI OXIDUM HYDRATUM. Hydrated Oxide of Lead. 3 (PbO) HO.

These preparations are of little value as therapeutic agents. They are never administered internally, but enter into the composition of several ointments and plasters. Even externally applied, they are not free from danger.

Offic. Prep. of Litharge:—Emplastrum Lithargyri; Emplastrum Plumbi (Pharm. Lond.) (Litharge in very fine powder lb. iv.; Olive Oil Cj.; Water Oiiiss. Boil the ingredients together gently for four or five hours, stirring constantly until the Oil and Litharge acquire a proper consisteney for a plaster, adding more Water if necessary).

* See O'Shaughnessy's Trans. of Lugol's Essays, pp. 205-8.

† Clinique Chirurg, t. ii.

‡ Johnson's Tropical Climates, 6th Ed., p. 299.

§ On Diseases of the Scalp, 8vo, 1848.

2136. PLUMBI NITRAS. Nitrate of Lead. PbO, NO_5. A compound of Oxide of Lead 67·47, and Nitric Acid 32·53, in 100 parts; or 1 Eq. of Oxide of Lead = 112, + 1 Nitric Acid = 54 = 166, Eq. Wt.

Med. Prop. and Action. Astringent. Externally, it is used as an astringent lotion (gr. x.—gr. lx. ad Aq. fl. oz. j.). It is chiefly valuable as a disinfectant. A solution (gr. lx. ad Aq. fl. oz. j.) is said entirely to destroy the effluvium of decaying animal and vegetable substances. This is Ledoyen's Disinfecting Fluid. It is also said to be antiseptic.

Dose, gr. ½—gr. j. in the form of pill, twice or thrice daily.

2137. *Therapeutic Uses. In Active Hæmorrhage from the Lungs*, Dr. Pereira* states, that he has sometimes prescribed a pill composed of Sugar of Lead and Opium, and a mixture containing Nitric Acid. Nitrate of Lead would thus be formed in the stomach. With this combination, he succeeded in getting the system under the influence of Lead in a much shorter time than by the use of Sugar of Lead alone.

2138. *To Sore and Fissured Nipples, Chapped Hands and Lips*, a solution (gr. x.—Aq. fl. oz. j.) is stated to be very efficacious.

2139. PLUMBI SACCHARAS. Saccharate of Lead: has been proposed by Dr. E. Hoskins,† as a *solvent for Calculus in the Bladder*. He dissolves a portion of powdered Saccharate of Lead in dilute Nitric Acid (1 part of Acid to 19 of Water). This, when evaporated, yields the Nitro-saccharate of Lead. One grain of this salt, with gutt. v. of pure Saccharic or Acetic Acid, is dissolved in fl. oz. j. of Water. From fl. oz. iv. to fl. oz. viij. of this solution are thrown by a double flexible catheter into the bladder, and renewed every ten or fifteen minutes. Thus applied, it acts, he says, as a powerful solvent of *phosphatic calculi*. It causes no pain or irritation.

2140. PLUMBI SUBACETATIS LIQUOR. Solution of Sub-acetate of Lead. Sub-acetate of Lead, 2 PbO, $C_4H_3O_3$, dissolved in Water. Plumbi Diacetatis Liquor. Solution of the Diacetate of Lead (Pharm. Lond.). Extract of Saturn. Goulard's Extract (so called after its proposer Goulard, in 1770). *Comp.* Oxide of Lead 61·37, Acetic Acid 13·97, Water 24·66, in 100 parts. Sp. Gr. 1·26.

Med. Prop. and Action. Principally employed externally, as a mild astringent and sedative lotion. Its effects are similar to those of the Acetate.

Offic. Prep. 1. Liquor Plumbi Subacetatis Dilutus (Solution of Subacetate of Lead fl. drs. ij.; Rectified Spirit fl. drs. ij.; Distilled Water fl. oz. xixss.).

* Mat. Med., vol. i. p. 802.

† See Philosophical Trans., 1843, p. 7; and Lond. Journ. of Med., Oct. 1851.

2. Unguentum Plumbi Subacetatis (Solution of Sub-acetate of Lead fl. oz. vj.; Camphor grs. lx.; White Wax oz. viij.; Olive Oil Oj.).

2141. *Therapeutic Uses. In the acute pain occasioned by the presence of a Stone in the Bladder*, Dr. Prout* states that he has seen great temporary relief produced by a lotion composed of Liq. Plumb. Diacet. Dil. and T. Opii in equal parts, applied as hot as possible, by means of a sponge, to the perinæum. Opium or other remedies, as indicated in each case, may be given internally at the same time. *In Prostatorrhœa*, Prof. Gross† recommends the following injection:—℞ Liq. Plumbi Diacet., Vin. Opii āā f℥j., Aq. f℥x., M. To be used thrice daily.

2142. *In Leucorrhœa*, where there exists an acrid secretion, with heat and excoriation of the parts, a solution of the Sub-acetate (Liq. Plumb. fl. drs. ij., Aq. Oj.) forms an excellent sedative vaginal injection. It may be used warm or cold, according to the sensations of the patient. "In some cases," observes Dr. Locock,‡ "it is better to introduce into the vagina a piece of lint soaked in equal parts of Liq. Plumb., Liq. Opii Sed. and Mucilage." (See also VAGINAL INJECTIONS, part ii.)

2143. *In Catarrh of the Uterus*, Prof. Strohl,§ of Strasburg, employs injections of Liq. Plumb. Diacet. Dil. into the cavity of the uterus. The safety of the practice is very doubtful. (See UTERINE INJECTIONS, part ii.)

2144. *Gangrene of the Pudenda in female Children* was successfully treated by Mr. R. Wood,‖ who applied Liq. Plumb. Dil. and bread poultices made with the same lotion. When the ulcers were clean, they were dressed with Ung. Zinci.

2145. *In purulent Ophthalmia*, Dr. Vetch¶ states that the undiluted Liq. Plumbi Diacet. is a most efficacious application. It has the advantage, he says, of being perfectly harmless; and although for fifteen or twenty minutes, it causes some irritation, when this subsides, its astringent and soothing effect is evident. *In the Ophthalmia of Infants*, a diluted solution (♏x.—xv. ad Aq. fl. oz. j.) proves a useful collyrium. In some other forms of Ophthalmia, it also proves serviceable; but it is inadmissible in all cases where ulcerations of the cornea exist, as it is apt to produce an indelible opaque cicatrix.

2146. *Nævus Maternus.* Dieffenbach** states that flat nævi, up to the size of an inch in diameter, may be removed by the following process:—A piece of lint steeped in pure Liq. Plumbi is to be fastened over the part by a bandage, and is to be kept con-

* On Stomach and Renal Diseases, p. 348.
† North Amer. Med.-Chir. Rev., July 1860.
‡ Cyc. Pract. Med., vol. iii. p. 38.
§ Med. Times, Dec. 16, 1848.
‖ Med.-Chir. Trans., vol. vii.
¶ On Diseases of the Eye, Lond., 8vo, 1820.
** Med. Times, vol. xvi. p. 355.

stantly wetted with fresh solution, without frequent removals. The application requires patience and perseverance. Cases successfully treated in this manner are related by Dr. Sigmund.*

2147. *In Mercurial Salivation*, a weak solution of the Acetate is advised as a gargle or wash, by Sommé,† and others. The mouth should be washed out after each application, as it is apt to blacken the teeth.

2148. *In Syphilitic Sore Throat*, when the ulcers assume a phagedenic character, the following gargle, recommended by Mr. Bacot, proves serviceable:—℞ Plumb. Acet. ℈j., Aq. Dest. Oss., M. ft. gargar.

2149. *In Pruritis Pudendi*, the following is a very soothing application:—℞ Liq. Plumb. Subacet. fl. drm. j., T. Hyos. fl. drs. ij., Mist. Camph. fl. oz. viij. It should be applied tepid. Rest and strict antiphlogistic regimen should be enforced. It proves useful in other forms of *Pruritus*. *To painful Piles*, Dr. Graves‡ advises the following lotion:—℞ Liq. Plumb. Diacet. Dil. f℥vj., Spt. Rosmar., T. Opii āā f℥j., M. To be applied five or six times daily.

2150. *Many Skin Diseases, particularly Porrigo Larvalis, and Porrigo Furfurans*, are much benefited by the local application of an ointment composed of fl. drm. j. of Liq. Plumb. ad Ung. oz. j. It should be spread on lint, and the whole covered with an emollient poultice.

2151. *To Chilblains*, Mr. S. Cooper§ advised the following application:—℞ Liq. Plumb. Diacet. f℥j., Spt. Vin. Rect. f℥ij., M.

2152. *To inflamed and erysipelatous Surfaces, Ecthyma, Paronychia, inflamed Glands, painful Bruises, Sprains, &c.*, the diluted solution (*ut supra*), kept constantly applied to the parts, is a soothing application. *To indolent and ill-conditioned Ulcers*, it may also be applied with advantage. *To Chapped Hands and Lips*, it proves very serviceable.

2153. Plumbi Tannas. Tannate of Lead. Is obtained by adding Tannic Acid to a solution of the Acetate of Lead. The precipitate is collected on a filter and dried.

2154. *Therapeutic Uses. For Bed Sores*, both as a curative and preventive agent, it has been highly praised by several French and German writers. The strength advised by Dr. Dunglison‖ is ℥ij. of the Tannate to ℥j. of Cerate.

2155. *To indolent Ulcers, and as an external application to*

* Edin. Med. Surg. Journ., April 1, 1843.

† Archiv. Gén. de Méd., vol. i. p. 483.

‡ Clin. Lect., vol. ii. p. 246.

§ Lectures on Surgery, Med. Times, Jan. 1, 1848.

‖ Med. Dict., art. Tannin.

White Swelling, it has also been advised. It is rarely used in British practice.

2156. Podophyllum. The dried rhizome of Podophyllum Peltatum, the American May-apple or Mandrake. *Nat. Ord.* Ranunculaceæ. *Linn. Syst.* Polyandria Monogynia. *Hab.* North America.

Podophylli Resina. A Resin obtained from Podophyllum by means of Rectified Spirit. This substance is usually known as Podophylline, but the name has been applied to two substances which require to be distinguished from each other:—1. To the pure resin (Podophylli Resina, Ph. Br.). 2. To an Extractive, containing not only the resin, but other principles of the Podophyllum. Berberine is stated to exist in the root, and to be contained in much of the commercial Podophylline. (Garrod.*)

Med. Prop. and Action. Podophyllum is purgative and cholagogue, and, in small repeated doses, alterative and deobstruent. According to Dr. Ramskill,† it ranks near Scammony as a purgative, but is milder in its operation. Dr. Garrod states that its action is very much like that of Jalap. As a cholagogue, Dr. Ramskill considers that it stands pre-eminent and alone, far above Mercury or any other drug of that class. Dr. Garrod,‡ however, thinks that it produces evacuations containing an abundance of bile, rather by emptying the gall-bladder than by augmenting the secretion of that fluid; for he has noticed the fact that, when many evacuations have been caused by it, the latter were rather of a serous or mucous than bilious character. Some remarks on its value as an aperient have also been published by Dr. Clarke,§ of the London Hospital. From the recorded experience of American physicians, the following points seem to be established:—1. That the purified resin of Podophyllum is escharotic, producing, when applied to the skin, small pustules, which are difficult to heal, and administered internally, giving rise to extreme griping and violent catharsis. 2. That Chloride of Sodium given with Podophyllin increases its purgative action to an undesirable extent, and should therefore be avoided, except in cold phlegmatic habits, where the action of the drug is feeble. 3. That Lactic Acid counteracts its operation, and that sugar, sweetmeats, pickles, and like substances should be avoided when it is administered. On the other hand, many writers recommend it to be well triturated with four or five times its weight of fine sugar. 4. That its use should be avoided in inflammatory states of the stomach and bowels, particularly of the mucous lining of the primæ viæ. 5. That a warm infusion of ginger is the best means of relieving tormina and griping caused by its use. 6. That for an over-dose, sour milk, whey, or any form of Lactic Acid, are the best remedies. Lastly. That, as a purgative, Bitartrate of Potash (gr. xx.—xxx.) is the best adjuvant; whilst, when given as a cholagogue or alterative, it is well to combine it with small doses of Belladonna, Hyoscyamus, or Cannabis Indica. In some cases a kind of ptyalism has been observed to follow its continued use. Mr. Hugh Norris‖ states that he has observed it produce emmenagogue, in addition to its purgative effects.

* Ess. Mat. Med. and Therap., p. 145.

† See Lancet for Feb and March, 1862, which contains a long article on this drug, from which the present notice is extracted in a very condensed form.

‡ Med. Times and Gaz., Mar. 5, 1864.

§ Ibid., Jan. 4, 1862.

‖ Lancet, Oct. 31, 1863.

The doses are:—Of the Powdered Root, as a cathartic, gr. xx. Of Podophylli Resina (Podophylline): as a cholagogue and cathartic, gr. j.—ij.; as a moderate purgative, gr. ½—gr. j.; as an aperient, gr. ¼—½; as an alterative, gr. ⅛—gr. ¼, twice or thrice daily.

2157. *Therapeutic Uses. In Liver Affections*, Podophyllin seems particularly indicated. Dr. Gardner, whose statements are principally followed, states that he has seen *Jaundice*, where the stools exhibited no trace of bile, and where the skin and eyes were of a deep yellow colour, cured by a single dose, incredible quantities of bile being evacuated. *In Engorgement of the Liver*, and *in Torpor of the Liver occurring in persons long resident in tropical climes*, he speaks most favourably of its action. In these cases it often does not act for ten or twelve, or even in some cases for sixteen or twenty hours, the purging appearing to result from the large amount of bile thrown into the bowels. Sometimes its action is without uneasiness, but generally there is a sense of tormina or twisting, and spasmodic action in the upper region of the abdomen about the navel. In all cases where it is desirable to evacuate or stimulate the liver, as in *Fevers*, *Bronchitis*, *Headache*, *&c.*, Dr. Gardner states that he has used Podophyllin with highly satisfactory results.

2158. *In Constipation*, without other disorder, Dr. Gardner usually prescribes gr. ⅛—¼ in a pill with Pil. Rhei Co. It acts, he remarks, very much the same as we expect a grain of Calomel or five grains of blue pill with the compound Rhubarb Pill to act, and he considers that in very numerous cases it may be substituted for mercurials with great advantage. *In the Constipation of Phthisis*, often depending upon fatty degeneration of the liver, it has been resorted to with the best effects, and, notwithstanding the length of period which elapses before it operates, with a marked degree of benefit not obtainable from any other purgative.

2159. *In Gout*, when it is often an important point of treatment to secure free biliary evacuations, Dr. Gardner employs with good effect Podophyllin in the form of pill with Henbane or Belladonna, which latter medicines modify its operation. The same treatment has been adopted in *Acute Rheumatism*.

2160. *In Secondary Syphilis*, it has been employed by Dr. Marston, of the Royal Artillery, and by Dr. R. S. Sisson* as a substitute for Mercury with marked success. It has also been largely used in America in the treatment of *Syphilitic Affections*. The dose recommended by Drs. Marston and Sisson is gr. ⅛, combined with a sedative, three times a day. Dr. Kidd, of Cincinnati,† found that in small repeated doses it was of great value as a deobstruent in *Scrofula*, *Syphilis*, *Rheumatism*, and other chronic diseases.

* Lancet, Jan. 16, 1864.

† Ranking's Abstract, vol. xxxv. 1862, p. 348.

2161. Polygonum Bistorta. Officinal Bistort, or Snake-weed. *Nat. Ord.* Polygonaceæ. *Linn. Syst.* Octandria Trigynia. *Hab.* England.

Med. Prop. Astringent. It is best given in the form of decoction (oz. ij. of the root, Water Oiss.), in doses of fl. oz. iss.—fl. oz. ij. Its astringency is due to the presence of Tannic Acid.

Dose of Powdered Root, gr. xx.—gr. xxx.

2162. *Therapeutic Uses.* Bistort root was formerly held in high esteem *in Passive Hæmorrhages, Chronic Diarrhœa, Gleet, Leucorrhœa, as a gargle in ulcerated or relaxed Sore Throat, and as a lotion to Ulcers attended with profuse discharge.* It is now rarely employed, but it may doubtless be used with advantage in many cases where astringents are indicated. In conjunction with Acorus Calamus, it has been given in *Intermittents.*

2163. Polyporus Officinalis. Boletus Laricis. Larch Agaric. A fungus found on the Larch Tree in many parts of Europe. It was proposed by De Haen as a means of diminishing *the profuse perspirations of Phthisis;* others have employed it with advantage; but, on the unfavourable report of Andral, it has fallen into disuse. It was given in doses of gr. iij.—viij. In doses of gr. xxx.—gr. lx. it is purgative, and in larger doses emetic.

2164. Potassa Caustica. Caustic Potash. KO, HO. Potassæ Hydras. Hydrate of Potash (Pharm. Lond.). Called also Potassa Fusa, Lapis Infernalis, Kali Purum, &c. *Comp.* 1 Eq. Potash = 47, + 1 Water = 9 = 56, Eq. Wt.

Med. Prop. and Action. Powerful caustic and escharotic; and when taken into the stomach, it acts as a caustic poison. It is never given internally. For external use it is generally moulded into pencils, which should be of a white colour, but are frequently variously coloured from the presence of impurities. One of its chief medicinal uses is in making issues, &c., but the rapidity with which it deliquesces is a great objection to its use. It readily attracts moisture from the atmosphere, and should therefore be kept in closely-stoppered bottles. The mixture of equal parts of Caustic Potash and Lime (Potassa cum Calce) is also used as a caustic. It has the advantage of being less deliquescent than Potassa Fusa. It is used in the form of paste made with spirit.

Offic. Prep. Liquor Potassæ. (See art. Potassæ Liquor.

2165. *Therapeutic Uses. In Hospital Gangrene,* Prof. Restelle * considers that Caustic Potash is not only the best application, but that it neutralizes the virulence of the poison itself. He employed it with success in 400 cases. On the first day, he applied pieces of the caustic in substance to the wound, endeavouring to penetrate into all its sinuosities. The next day the wound is dressed with a solution of ℈j. ad Aq. f℥j., and every day the strength is diminished by four or five grains, to the fifth

* Brit. and For. Med.-Chir. Rev., Oct. 1850.

day, when the wound is simply dressed. Even the worst cases improved under this treatment. In the subsequent management of the wounds, charcoal, and especially the Carbonate of Magnesia, were of great service.

2166. *In Uterine Inflammation*, Dr. H. Bennett* speaks highly of the value of Potassa Fusa and Potassa cum Calce as local applications. He considers it, however, as a last resource, only to be employed when all other treatment, local and general, has failed. If incautiously or imprudently employed, serious results may follow.

2167. *Nævi Materni.* Mr. Wardrop† re-introduced the ancient practice of destroying superficial nævi by the application of Potassa Fusa. An eschar forms, and after the ulcer heals, a cicatrix remains in the place of the nævus: the benefit of the exchange is doubtful. Mere thickenings and discolorations of the rete mucosum were cured by Bateman,‡ by applying constantly a mixture of Spirit and Liq. Potassæ. A more successful mode of treatment is that advised by Dr. Darley,§ viz. to pass threads steeped in a solution of Sulphate of Copper or some other caustic solution, through the tumour. He states that it is both safe and efficacious. *To Medullary Tumours*, M. Lallemand‖ advises Caustic Potash to be kept in contact with the surface, by means of adhesive plaster.

2168. *Varicose Veins.* Mr. Mayo¶ applied Potassa Fusa over the trunks of the subcutaneous veins of the leg, affected with varix, in order to produce inflammation of the vein, with coagulation of the blood in it, and obliteration of the cavity. In some few instances, he observes, on the healing of the ulcer left by the separation of the eschar, no effect on the vein was observable; but in much the greater proportion, the vein became firm and hard, and its cavity was obliterated at the part where the issue had been made. He adds that he never witnessed phlebitis supervene, in following this practice. It is, however, rarely employed at present. The practice is not unattended with danger.

2169. *In Eczema*, solutions of Caustic Potash have been recommended as external applications by Hebra and Dr. T. M'Call Anderson.** The latter recommends that in the mildest cases, with only slight infiltration, gr. ij. of Potassa Fusa in Aq. fl. oz. j. be applied; but in more severe cases the strength of the solution may be increased to 5, 10, 20, or even 30 grains or more

* Lancet, July 15 and Aug. 5, 1854.
† Med.-Chir. Trans., vol. ix.
‡ Synopsis of Diseases of the Skin, p. 330.
§ Dub. Quart. Journ., Feb. 1851.
‖ Archiv. Gén. de Méd., April, 1843.
¶ Outlines of Human Pathology, p. 443.
** Med. Times and Gaz., July 11, 1863.

to the ounce. The solution should be applied with a broad brush, and should be washed off speedily with water. The stronger solutions should not be applied more than once a day. If it produce any manifest destruction of the skin, it has been applied of too great a strength, or been allowed to remain too long. In very obstinate cases, and where the eruption is very limited, Hebra sometimes uses a solution of gr. lx. of the Caustic Potash to Aq. fl. drs. ij., or even applies the solid caustic itself. This must be done, however, with the greatest circumspection, and the caustic must be washed off immediately.

2170. *Scrofulous Abscesses.* Baudelocque * objects to the lancet as a means of opening these abscesses; and proposes, in its place, to apply a caustic composed of equal parts of Caustic Potash and quicklime, made into a paste with spirit of wine. This is smeared over the whole of the diseased surface, and allowed to remain on for five minutes. The eschar is thrown off in the course of a few days. The objection to this application is the great irritation to which it gives rise. In British practice, the lancet is generally preferred.

2171. *Strictures of the Urethra.* Mr. Whately,† in 1804, proposed substituting Potassa Fusa for Argent. Nit. in arming bougies to be applied to strictures of the urethra; but the practice fell into disuse till in 1851 Mr. Wade‡ warmly advocated its use. The cases in which he advises it are,—1, Strictures having a cartilaginous hardness, and impervious to instruments; 2, Strictures of long standing, which, although admitting the passage of a small bougie, bleed more or less freely on its introduction; 3, Irritable Strictures. He considers that the principal superiority of this caustic over Argent. Nit. in the treatment of stricture, consists in its more powerful effect in moving hard strictures, and that with perfect safety, and comparatively with but little pain.§

2172. Potassa Sulphurata. Sulphurated Potash. Potassii Sulphuretum. Sulphuret of Potassium. Tersulphuret of Potassium, KS_3, with Sulphate of Potash. Called also Hepar Sulphuris, Liver of Sulphur. *Prep.* Rub together Sulphur. oz. ivss., Potas. Carb. oz. x.: heat them in a covered crucible until they have united.

Med. Prop. and Action. Stimulant, diaphoretic, and expectorant, it increases the force and frequency of the pulse, and the action of various secreting organs. It requires to be commenced in small doses, and cautiously increased. Its chief use is as an external application, in solution (drm. j.—ij.,

* Étud. sur les Causes de la Malad. Scrof., p. 318.

† An Improved Method of Treating Stricture of the Urethra, Lond. 1804.

‡ Obs. on Permanent Stricture, Lond. 1851.

§ See also Howship, Obs. on the Urinary Organs, p. 207.

ad Aq. Oj.), or in the form of ointment (drm. ss.—j. ad Ung. oz. j.). Its action is diminished by keeping. The sulphurous bath is prepared by dissolving oz. iv. of Sulphurated Potash in thirty gallons of water.

Dose, gr. iij.—gr. x.

Incompatibles. Mineral and vegetable acids, and the salts of most metals.

2173. *Therapeutic Uses. In Dyspepsia*, when the mucous follicles are supposed to be implicated, much benefit will be derived from the exhibition of this salt, in doses of gr. x., either alone or combined with some aromatic. Dr. Todd * considers that it possesses a specific action upon the mucous follicles.

2174. *In Albuminuria*, it is of importance to establish free diaphoresis. For this purpose, Dr. Osborne † advises the following formula :—℞ T. Guaiaci Am. f℥ss., Potass. Sulphuret. gr. v., Liq. Ammon. Acet. f℥ss., M.; to be taken at bed-time, followed by a pint of hot whey. *In Chronic Rheumatism*, it is occasionally prescribed as a stimulant diaphoretic.

2175. *In Scabies*, the Sulphurated Potash is an efficacious remedy. The following mode of application, adopted by Alibert, Dupuytren, &c., has met with great success. In one bottle is placed a solution of the Sulphuret (℥j. ad Aq. Oij.); in another bottle is placed f℥ij. of dilute Sulphuric Acid. At the time of the application, the patient places a glassful of each in a basin of hot water, and washes the parts affected for half an hour, morning and evening. It has not a very strong odour, and does not stain the linen,—two great advantages. The famous Liniment of Jadelot is composed thus :—℞ Potas. Sulphuret. ℥ij., Sapon. Alb. lbj., Ol. Papav. lbij., Ol. Thymi ℥j., M. ft. unguent. bis die applicand. Valentin's Liniment is equally efficacious, and less irritating :—℞ Pot. Sulphuret. ℥j., Ol. Amygd. ℥j., Camphor ℈j., M. By the use of these a complete cure is effected under fourteen days.‡

2176. *In Acne Simplex*, Dr. Todd § advises the local application of a solution (Potas. Sulphuret. ℥j., Aq. Oj.) twice a day; or what is more effectual, a sulphuretted bath (℥iv. ad Aq. Occ.). *In Ringworm*, a lotion, composed of Potas. Sulph. gr. lx.—cxx., Aq. Calcis lbj., has been found very successful. *In Sycosis or Mentagra*, Duparc advises that the pustules should be painted, night and morning, with a concentrated solution of the Sulphuret of Potash. It is said to be efficacious. It has also been successfully used as a lotion in *Tinea Capitis*, *Eczema*, *Lepra*, *&c.*

2177. *In Lead Poisoning*, the sulphurous bath is one of the most effectual remedies we possess. (See SULPHUR.)

2178. *In Croup*, the Sulphurated Potash has been recommended by Drs. Serf, Chaussier, Mercier, and Hecker, in doses

* Cyc. Pract. Med., vol. ii. p. 641.
† Dub. Quart. Journ., Aug. 1851.
‡ See Med.-Chir. Rev., July 1845.
§ Cyc. Pract. Med., art. Acne, vol. i.

of about four grains every three or four hours. It may be combined with Camphor, or small doses of Ipecacuanha. (Dr. Copland.*) It is occasionally useful as a stimulant expectorant in *Chronic Bronchitis*.

2179. Potassæ Acetas. Acetate of Potash. KO, $C_4H_3O_3$. A compound of Potash 47·96. Acetic Acid 52·04, in 100 parts; or, 1 Eq. Potash=47, + 1 Acetic Acid=51=98, Eq. Wt.

Med. Prop. and Action. In doses of gr. xx.—gr. lx., it is an efficient and mild diuretic; in doses of gr. cxx.—gr. ccxl., it acts as a purgative; but in the latter character it is inferior to other saline purgatives, as it causes much griping and flatulence. When administered in continuous doses, it is absorbed into the system, the hydrogen and part of the carbon of the Acetic Acid become oxidized in the blood, and the salt appears in the urine in the form of carbonate, rendering that secretion alkaline, and generally producing an increase in its quantity. Mr. Easton observes that, in all cases in which it was administered, the urine was not only augmented in quantity, but that its solid constituents were increased in a remarkable degree. Dr. Golding Bird considers that in rheumatism, skin diseases, &c., it probably acts by altering and correcting a morbid condition (lactic acid?) of the blood. Its diuretic effect is increased by giving it largely diluted. It should be kept in well-stoppered bottles.

Dose, as a diuretic, gr. xx.—gr. lx.; as a purgative, gr. cxx.—gr. ccxl.

Incompatibles. Mineral Acids; the Sulphates of Soda and Magnesia; Hydrochlorate of Ammonia; Tartrates of Potash and Soda; solutions of Corrosive Sublimate; Nitrate of Silver, and some other salts of metals and earths.

2180. *Therapeutic Uses. In Dropsical Affections, Œdema, Anasarca, &c.*, the Acetate of Potash often proves eminently useful as a diuretic. For this purpose it should be combined with T. Scillæ or T. Digitalis. It should not be given in larger doses than gr. xxx. every three or four hours, or it may act as a purgative, and pass off by the bowels.

2181. *In Acute Rheumatism*, it is highly spoken of by Dr. G. Bird.† He states that the Acetate, given with a mixture of sugar, water, and essence of lemons, acts with marvellous rapidity. In addition to this, he administers Pil. Sapon. c. Opio gr. v. night and morning; by this, he not only relieves the pain, but prevents the other remedy passing off by the bowels. If the liver be engorged, a mild mercurial may be employed. The dose usually employed is gr. xxx. every four hours. The vapour bath may be also employed. For his explanation of its action, see *ante*.

2182. *In Diseases of the Skin*, the internal exhibition of the Acetate of Potash has proved very beneficial in the hands of Mr. Easton.‡ He relates some cases of *Psoriasis, Lepra, and Eczema*, which yielded to its use.

* Dict. Pract. Med., vol. i. p. 470.
† Med. Gaz., June 15, 1849; and Lancet, Feb. 15, 1851.
‡ Monthly Journ. of Med., May 1850.

2183. POTASSÆ BICARBONAS. Bicarbonate of Potash. KO, HO, 2 CO^2. *Comp.* 1 Eq. Potash = 47, + 2 Eq. Carbonic Acid = 44, + 1 Water = 9 = 100.

Med. Prop. and Action. Antacid, alterative, and diuretic. It is readily absorbed, and renders the blood, urine, and probably other secretions highly alkaline: hence its alterative effect (Garrod). It also increases the action of the kidneys. In *Dyspepsia depending on undue acidity*, it is prescribed with much benefit, and it is very useful where there is *an excess of Uric Acid* in the urine. It is also valuable in *Inflammatory Affections*, especially in *Acute Rheumatism*. According to Dr. Garrod, it does not produce the same sedative effect on the stomach as does Liquor Potassæ.* It is frequently used in the form of effervescing draughts (gr. xx. of the Bicarbonate saturates gr. xiv. of Citric Acid, or fl. drs. iiiss. of Lemon-juice).

Dose, gr. x.—gr. xxx. It should be freely diluted.

Incompatibles. The same as Potassæ Carbonas.

2184. *Therapeutic Uses. In Acute Rheumatism*, Dr. Garrod† employed the Bicarbonate successfully in 51 cases. He prescribed it in doses of ℥ij. freely diluted, every two hours night and day, until the patient was free from all articular affection and febrile disturbance for two or three days. Local depletion over the heart was employed, if that organ became implicated. The average duration of treatment was 7½ days. It renders the urine highly alkaline. No gastric or other unpleasant symptom followed the use of this salt, even in the above large doses.

It may also be prescribed with advantage in the same affections as Potassæ Carbonas (q. v.).

2185. POTASSÆ BICHROMAS. Bichromate of Potash. KO, 2 CrO_3. A compound of 1 Eq. Potash = 47 + 2 Eq. Chromic Acid = 100 = 147, Eq. Wt.

Med. Prop. and Action. Alterative and anti-syphilitic in very small doses. In large doses it is a powerful narcotico-irritant poison. Three cases of poisoning by it are recorded by Prof. Taylor.‡ When solutions of the chromate and bichromate are brought much in contact with the skin, they cause sores which it is difficult to heal. The solutions have powerful antiseptic properties.

Dose, gr. $\frac{1}{10}$–$\frac{1}{6}$ in pill.

2186. *Therapeutic Uses.* The Bichromate has been recommended as a remedy in *Syphilitic Iritis* and *Secondary Syphilis generally* by M. Desmarres and Dr. Wolfe.§ In a case of Syphilitic Iritis the latter prescribed as follows:—Bichromate of Potash gr. xvj., Powdered Opium gr. xij., Syrup q. s., to make 100 pills: one morning and evening, to be gradually increased until six are taken daily. The patient recovered in a few days. Dr. Wolfe has administered it with marked success in upwards of twenty cases.

* Garrod, Ess. Mat. Med. and Therap., p. 106.

† Lancet, March 3, 1855.

‡ Med. Jurisprudence, 5th Ed., p. 129.

§ Lancet, Nov. 7, 1863.

2187. Potassæ Carbonas. The Carbonate, sometimes called the Subcarbonate of Potash. $KO\,CO_2 + 2\,HO$. *Comp.* Potassa 57·6, Carbonic Acid 26·4, Water 16, in 100 parts.

Med. Prop. and Action. Antacid, alterative, and diuretic. Its action resembles that of Potash, but it is less caustic, and therefore can be administered in larger quantities. Milk is a good vehicle for its exhibition, as it disguises its taste. Its diuretic effect is greatly increased by the use of diluents, and by a combination with other diuretics. It passes through the kidneys unchanged. It is frequently used in the form of effervescing draughts, thus:—gr. xx. of the Carbonate saturates gr. xvij. of Citric Acid, or fl. drs. iv. of Lemon-juice. The salt requires to be kept in well-stoppered bottles, as it deliquesces on exposure to the air. The ill effects of its long-continued use, are the same as those of Liq. Potassæ (see that article).

Dose, gr. x.—xxx. freely diluted.

Incompatibles. Acids and Acidulous Salts; Tartar Emetic; Calomel; Corrosive Sublimate; Sulphates of Quinine, Iron, Zinc, and Magnesia; the salts of Lead and Silver.

2188. *Therapeutic Uses. In Acidity of the Primæ Viæ*, Dr. Prout* employs a formula composed of gr. x.—ʒss. of the Carbonate, and gr. iv.—v. of the Nitrate of Potash in a draught. This he advises to be taken from three to six hours after a meal, when we suppose that the digestive process is about completed.

2189. *In Calculous Affections*, when the urine has an acid reaction, alkalies may be given with advantage. Soda was long employed in these cases, but Dr. Prout† and other more recent authorities advocate the Carbonate of Potash, as the lithate of soda, which is formed when soda is exhibited, has been found occasionally to constitute a considerable portion of the urinary calculus. The intense pain attendant on the presence of a stone in the bladder, is often strikingly relieved by this and the other alkalies. It may be given in doses of gr. x.—gr. xxx. in mucilage, with fl. drm. j.—fl. drs. iss. of Tincture of Hyoscyamus. Like the Bicarbonate, it may be prescribed with advantage where there is an *excess of Uric Acid in the urine.*

2190. *In Diseases of the Skin*, the local application of alkaline lotions and ointments was first proposed by Devergie,‡ and has been found very useful. *In the chronic forms of Eczema, Herpes, and Pityriasis*, Dr. Neligan§ advises an ointment composed of Carbonate of Potash ℈j., and Lard ʒss. This is to be lightly smeared over the eruption, which should be also washed every morning with a weak solution of Potash (ʒss., Water Oj.). When thick crusts exist, they should be first treated with emollient poultices, and the scabs removed. The ointment will then act more powerfully and readily. He directs soap and water never to be applied to the scalp in these affections. *In*

* On Stomach and Renal Diseases, 4th Ed., p. 92.
† Op. cit.
‡ See Ann. de Thérapeutique, 1846.
§ Diseases of the Scalp, 8vo, 1848.

various forms of Porrigo, Lichen, Acne, Impetigo, &c., a similar treatment has proved successful in the hands of Dr. Schedel.* In addition to the means proposed by Dr. Negligan, he speaks highly of the utility of local alkaline baths (Potas. Carb. ʒss.—ʒj. ad Aq. Oiv.).

2191. *Epilepsy and Epileptoid Affections.* Dr. Marshall Hall† observes, that both mental emotion and gastric irritation are apt to induce excessive secretion of Hydrochloric Acid in the stomach, which is of itself a frequent cause of the supervention of an attack. This is effectually removed by an antacid, and the Carbonate, or Bicarbonate of Potash, in doses of ℈j.—ʒss., is the one he chiefly recommends.

2192. *In Scurvy*, it has been found highly serviceable. (See POTASSÆ NITRAS.) *In Buzzing in the Ears, &c., produced by accumulations of hardened wax in the Ear*, M. Triquet‡ recommends the ears to be syringed with a solution of Potassæ Carb. (grs. iij.—xx. ad Aq. fʒj.), the ears being stopped at night with cotton, in order that a portion of the liquid may be retained.

2193. POTASSÆ CHLORAS. Chlorate of Potash. KO, ClO_5, *Comp.* Potash 38·37; Chloric Acid 61·63 in 100 parts; or, 1 Eq. Potash = 47, + 1 Chloric Acid = 75·5 = 122·5. Eq. Wt.

Med. Prop. and Action. Refrigerant and diuretic. It was formerly considered that this salt was useful in affording oxygen to the system; but Wöhler obtained it in an unchanged state, in the urine of a person who had taken it, showing that it undergoes no chemical change in passing through the system. O'Shaughnessy found it a powerful restorative and stimulant when injected into the veins; and Dr. Stevens ascertained that it communicates an arterial colour to venous blood. He also found that it rapidly caused soreness of the gums. It forms an important article in what is called the Saline treatment of diseases.

Dose, gr. x.—xx.

2194. *Therapeutic Uses. In continued and Typhoid Fever*, Chomel recommends the internal use of the Chlorate. Dr. Watson§ states that he gives to all his fever patients ʒj. of this salt dissolved in Oj. of water, as a daily drink, and that it appears to exercise a favourable influence upon the general character and course of the disorder. *In Scarlet Fever*, he states that he employs this drink with manifest advantage. Under its use, the tongue, from being furred and brown, or dry, becomes clean and moist. Dr. Copland also speaks highly of its efficacy in the advanced stages of this class of diseases. His estimate of its value is very high.

* Lib. of Med., vol. i p. 400, et seq.
† On the Threatenings of Apoplexy, p. 63.
‡ Ranking's Abstract, xxxv. p. 49, 1862.
§ Lectures, vol. ii. pp. 777 and 823.

2195. *In Anasarca and Ascites after Typhus Fever*, Prof. Lombard* strongly recommends the Chlorate of Potash, in doses of gr. xv.—xviij. every four or six hours. He states that he has seen great benefit result from its use.

2196. *In Cancrum Oris*, Mr. Hunt† states that the internal use of the Chlorate of Potash has a most beneficial effect. He prescribes from v. to xx. grains for children, and from ℈j. to ʒj. for adults, daily. Its good effects are visible in a few days at the furthest. Mr. Hunt believes that it possesses a specific power in this affection. Aperients should be administered at the same time, and the constitution supported. *In Gangrenous Stomatitis*, Dr. Golding Bird‡ bears witness to its efficacy. *In Aphthous Inflammation and Ulcer of the Tongue*, arising from anything which irritates the alimentary canal, Mr. Bryant§ successfully employed the Chlorate internally (gr. v.) and locally (ʒj.—ʒij. ad Aq. Oj.). *In Diphtheria*, it may be given with benefit in full doses, in conjunction with the Tincture of the Perchloride of Iron, and a gargle containing Hydrochloric Acid and Chlorate of Potash may be employed.

2197. *Phagedenic Ulcerations, and those of Secondary Syphilis.* Some very interesting cases illustrative of the beneficial effects of the Chlorate in these cases, are recorded by Mr. Sayle.‖ He employed the following formula:—℞ Potas. Chlor. ℈j., Infus. Gentianæ fʒiss., M. ft. haust. ter in die sum. In each case in which it was given, it effected a cure in a few weeks. Mr. Alison,¶ also, testifies to its efficacy. Dr. Drysdale** details an interesting case of *Infantile Syphilis* cured by the Chlorate without the aid of Mercury or Iodine:—℞ Potass. Chlor. ʒj., Aq. Oj., M. Dose, a teaspoonful four times a day. Mr. Allingham,†† also, has published a number of cases of *Syphilis in Infants* cured by the administration four times a day of one or two teaspoonfuls of a saturated solution of Chlorate of Potash, with from ♏ij.—v. of dilute Hydrochloric Acid. The mothers, when the infants were suckling, took daily an ounce of the same solution. *To Cachectic Ulcerations*, the Chlorate finely powdered and locally applied with the finger proved very serviceable in the practice of Mr. Hutchinson.‡‡ It produces a sharp smarting for a short time, but this soon subsides. The cases for which it seems best suited are *Ulcers of the Leg*, *Open Buboes*, *Simple Sores on the Skin of the Penis*, and *Cracked Nipples*. It may likewise be given internally. In *Fœtor of Breath*, a good mouth

* Med.-Chir. Rev., vol. lxxx.
† Med.-Chir. Trans., vol. xxvi. p. 142.
‡ Lancet, March 7, 1846.
§ Braithwaite's Retrospect, xlv. p. 100, 1862.
‖ Med. Times, vol. xviii. pp. 39, 96.
¶ Ibid.
** Dub. Med. Press, Dec. 3, 1862.
†† Med. Times and Gaz., Oct. 31, 1863.
‡‡ Lancet, Dec. 26, 1857.

wash is a solution of the Chlorate (gr. xc.) in sweetened water fl. oz. iv.

2198. *In Chronic Mucous Diarrhœa*, with whitish, greyish, or mucilage-like stools, arising from the absence of bile, &c., Dr. Copland* states that he has prescribed the Chlorate, conjoined with Pulv. Tragac. Co. and aromatics, with great benefit. *In Infantile Cholera*, when it passes into a dysenteric state, when the exhaustion is great, and the stools offensive, he also administered the Chlorate, in the same combination, with advantage. *In Chronic or Asthenic Jaundice*, accompanied by a torpid state of the liver, he also advises the Chlorate, which may, in this case, be advantageously conjoined with the Carbonate of Soda, or with other substances.

2199. *In Chronic Bronchitis*, particularly when it occurs in persons advanced in life, and in children, when it has assumed a chronic form after hooping-cough, or the exanthemata, Dr. Copland† states that he has occasionally seen benefit from the internal exhibition of the Chlorate of Potash in doses, for adults, of from gr. ij. to gr. vj., three or four times a day. *In Phthisis*, the Chlorate is advocated by Dr. Fountain,‡ of Iowa. He considers that it aids the functions of respiration by supplying the blood with oxygen. He prescribes it to the extent of ʒss. daily in divided doses. Its claims have also been advocated by Dr. Harkin,§ of Belfast. He speaks of it as most potent in controlling the hectic symptoms and *colliquative diarrhœa*, without increasing the perspirations, as ordinary astringents do. In some advanced cases of Phthisis, however, in which it was tried by Prof. A. Flint,‖ of New York, it failed to afford relief. Dr. Harkin also speaks warmly of its value in *Scrofula*, when given in doses of gr. v.—xx. four times daily, dissolved in pure water. He states that ten or fifteen days generally suffice to heal extensive *Ulcerations of the Cervical and Sub-maxillary Glands;* and that *Scrofulous Enlargements* and *Strumous Ophthalmia* yield rapidly to its use. *For Tumours* and *Enlarged Scrofulous Joints*, he applies locally, in addition to its internal administration, an ointment containing ʒij. of the powdered salt to ʒj. of lard.

2200. *In Erysipelas supervening upon Anasarca, or if there be any tendency to Gangrene, or if the temperature of the surface be low, and the colour deep or dark*, Dr. Copland¶ advises the internal use of the Chlorate with the Tincture of Cinchona or Camphor, or both. *In Urticaria*, Mr. Erasmus Wilson** states that he has sometimes succeeded in quelling the pruritus of this

* Dict. Pract. Med., vol. i. and ii.
† Ibid., vol. i. p. 264.
‡ Amer. Journ. of Med. Sci., Sept. 1860.
§ Dub. Quart. Med. Journ., Nov. 1861.
‖ Amer. Quart. Journ. of Med., Oct. 1861.
¶ Dict. Pract. Med., vol. i. p. 829.
** Diseases of the Skin, p. 159.

and other eruptions, by the use of a lotion containing the Chlorate of Potash.

2201. *In Leucorrhœa and Ulceration of the Os Uteri*, injections of the Chlorate (ʒj.—Aq. Pluv. fʒviij.) have been successfully employed by Dr. Bedford Brown.* *In Gonorrhœa*, Dr. Irvin† speaks highly of injections of a solution of the Chlorate (ʒj. ad Aq. fʒviij.), employed hourly for twelve hours. On the second or third day the disease is generally cured, without the aid of medicine beyond a mild saline aperient.

2202. *In Ptyalism* it is highly spoken of by Mr. Alison,‡ who states that he has seen it exercise the most beneficial influence in these cases. It may also be used in the form of gargle.

2203. *In Scurvy* it was successfully employed by Dr. Ferriar,§ and the statements of Dr. Garrod respecting the influence of the Salts of Potash generally in scorbutic affections, render it extremely probable that it is a valuable remedy; but it does not appear to possess any advantage over the other Salts of Potash. (See POTASS. NIT.)

2204. *In Cholera*, the Chlorate of Potash forms an important part in the so-called saline treatment; but how far it contributes to the efficacy of that treatment, is uncertain. (See SODII CHLORIDUM.)

2205. *In Pregnancy*, the Chlorate has been apparently successful in the hands of Mr. Grimsdale,‖ in those cases where the fœtus in several successive pregnancies has been carried to a certain period, and is either still-born or very weakly, and where no external or other cause can be assigned to explain the circumstance.

2206. POTASSÆ CITRAS. Citrate of Potash. 3 KO, $C_{12}H_5O_{11}$. A very deliquescent salt. It may be prepared extemporaneously, by combining Potas. Bicarb. gr. xxv. in solution, with Citric Acid gr. xvij. also in solution, or with fl. oz. ss. of lemon-juice. To be drunk whilst effervescing.

Med. Prop. and Therap. Uses. The Citrate acts mildly on the skin, bowels, and kidneys, and promotes their secretions. It is an excellent refrigerant, soothing or sedative diaphorctic, *in fevers*, and is less apt to act upon the bowels than the Acetate or Tartrate. It is particularly valuable when the stomach is irritable; and when there is a tendency to diarrhœa, it may be advantageously combined with an opiate, unless otherwise contra-indicated. This, in common with other vegetable salts of Potash, when taken internally, becomes absorbed and decomposed in the system, appearing in the urine in the form of a carbonate. Acting on this principle, the Citrate of Potash is

* Amer. Journ. of Med. Sci., July 1857.

† Braithwaite's Retrospect, xliv. p. 216.

‡ Op. cit.

§ Med. Hist. and Reflect., vol. iii. p. 250.

‖ Liverpool Med.-Chir. Journ., July 1857.

advised by Dr. O. Rees,* in those cases where the urine is acid, and it is desirable to render it alkaline. It is the more especially to be used when it is not desirable to purge the patient. It is a valuable remedy in *Uric Acid Gravel*, and allied diseases.

Dose, gr. xx.—gr. lx.

2207. POTASSÆ LIQUOR. Solution of Potash. Aqua Potassæ. Aq. Potassæ Causticæ. Sp. Gr. 1·058.

Med. Prop. and Action. Antacid, alterative, diuretic, and lithontriptic, in doses of ɱx. or more, in milk, thrice daily. "Its primary influence," observes Dr. A T. Thompson, † "is exerted on the stomach; if any acid is present, it is neutralized; but if an alkali predominate, or if no acid be present, it first acts as a sedative, allaying morbid irritability of the stomach, and, entering into the circulation, is carried undecomposed to the kidneys, upon which it acts, and can be readily detected in the urine." When absorbed into the blood, it renders that fluid more alkaline, and diminishes the plasticity of the fibrin. If given in long-continued doses, it acts as a liquefacient and resolvent, and Mr. Farr‡ observed, that, when continued for a long period, it produced petechiæ and bleeding from the surfaces of scrofulous ulcers, &c.; in fact, it gave rise to an impoverished state of the blood, not unlike what is observed in Scurvy. This state is removed by acids (see also ALKALIES, part ii.). As a blood alterant and resolvent, it may be given in inflammation of serous membranes attended with fibrinous deposits, also in Scrofula, Rheumatism, &c.

Dose, ɱx.—ɱxl., freely diluted.

Incompatibles. Acids and acidulous salts; all earths and oxides held in solution by Acids; Calomel; Corrosive Sublimate. Dr. Garrod§ has shown that Liquor Potassæ destroys the activity of Henbane, Belladonna, and Stramonium; hence they should not be prescribed together.

2208. *Therapeutic Uses. In Scrofula*, Liq. Potassæ was first proposed by Brandish,‖ who exhibited it in doses of fʒss.—fʒiss., thrice daily, for an adult, in malt tea, or some bitter infusion. Mr. Farr¶ employed it in much larger doses (fʒij.—fʒiij. thrice daily), and conjoined it with mercurial frictions. Both these writers regard it almost as a specific; and subsequent experience has shown, that though not deserving of the high encomiums passed on it by Brandish, it is in reality a remedy of considerable efficacy. Dr. Ranking** observes, that, given in doses of fʒss.—fʒj. thrice daily, it occasionally produces a rapid diminution of glandular tumours; but that it does not appear to have any effect in correcting the scrofulous diathesis. Cod Liver Oil and Iodine offer a better chance of success in the majority of cases.

2209. *In Phthisis and other Tubercular Diseases*, Dr. Campbell†† strongly recommends Liq. Potassæ on the theory that the elements of tubercle exist in the blood, and that they are soluble

* Med. Gaz., July 4, 1851.
† Cyc. Pract Med., vol. i. p. 629.
‡ On Scrofula, 8vo, Lond. 1820.
§ Proceedings of Med.-Chir. Soc., Nov. 24, 1857.
‖ On the Use of Caustic Alkalies in Scrofula, Lond. 1811.
¶ On Scrofula, 8vo, Lond. 1820.
** Trans. of Lugol on Scrofula, p. 244.
†† On Tubereulous Consumption, 8vo, 1841, Lond.

in the strong alkalies. He adduces many experiments and arguments in support of this opinion, and advises Liq. Potas. in doses of fʒss., three or four times daily for adults, and ɱxv.—xxv. for children under twelve years old, to be given in milk. When there exists acidity of the primæ viæ, it should be combined with the Carbonates of Soda or Potash. The medicine may be continued for a considerable period without producing any injurious effects; but should any of the symptoms described above supervene, it should at once be discontinued. The conclusions arrived at by Dr. Cotton* with regard to its use in Phthisis are as follow:—1. Liquor Potassæ in moderate doses (gutt. xv. thrice daily) rarely disagrees with consumptive patients, but is quite as rarely productive of any good effect. 2. That the so-called tubercular crasis is very much more likely to be relieved by the mineral acids than by the alkalies.

2210. *In Chronic Bronchitis, Bronchial Congestion, and Catarrh,* where the expectoration is scanty, thick, and viscid, Liq. Potassæ proves useful. In dry catarrh it is highly spoken of by Dr. C. B. Williams,† who advises the following formula:—℞ Liq. Potassæ, T. Scillæ ãã ɱx., T. Camph. Co. fʒss., Aq. Camph. fʒj., M. ft. haust. Alkaline baths, conjointly used, prove useful.

2211. *In the advanced stages of Pneumonia,* when the expectoration continues viscid, much advantage results by combining expectorants with alkalies, and no better formula can be employed than that of Dr. Williams', advised in the last section.

2212. *In Calculous Affections, and in some Diseases of the Bladder, when the Urine is acid, and there is much irritability of the Urinary Organs,* Liq. Potassæ, in doses of fl. drm. ss., combined with T. Opii, is productive of much benefit. Dr. O. Rees‡ states that he has often used it with the best effect; but, owing to the small quantity of Potash which we may venture to exhibit in the caustic state, the urine is not rendered alkaline by this remedy so speedily as when the tartrate or citrate of the base is used. He also mentions a fact brought to light by this mode of treatment, that the urine is secreted *acid* in many cases of *alkaline urine.* Now, if we begin in the early stage to exhibit small doses of Liq. Potassæ (ɱxv.—xx. thrice daily), we shall occasionally find, that whilst this alkali is being exhibited, the urine which was alkaline will become acid. (See further Acids, part ii.) *Ardor Urinæ, attendant on Gonorrhœa,* or arising from other causes, is greatly relieved by the addition of Liq. Potassæ to mucilaginous drinks, &c.

2213. *Acidity of the Primæ Viæ, Cardialgia, and other anomalous Affections arising from this cause,* will often yield rapidly to

* Med. Times and Gaz, April 13, 1861.

† Cyc. Pract. Med., vol. i. p. 367.

‡ Med. Gaz., July 4, 1851.

Liq. Potassæ, in doses of ɱx.—xv., in milk. Its effect is not so transitory as that of the carbonated alkalies.

2214. *In Acute Rheumatism*, the internal exhibition of Liq. Potassæ is sometimes attended with the best effects. Dr. Watson,* who speaks highly of its efficacy, advises it to be given in daily doses of fʒj. for several days consecutively, the bowels being, at the same time, kept freely open by laxative medicines. Under this treatment, he observes that he has found the urine clear, the pain abate, and the joints regain their motion, more surely than under any other treatment. Schoenlein† advises the body to be sponged with a lotion composed of Liq. Potassæ fʒj.—fʒss. ad Aq. Oj. It causes a small degree of beneficial excitement on the skin, and neutralizes the excess of acid matter that is secreted by the surface of the body. It should be applied tepid at first, and then gradually cooler and cooler. It is particularly useful given internally, when the urine contains lithic acid deposits. *In Gout* it occasionally proves very useful, given in conjunction with colchicum or blue pill.

2215. *In Chronic or Subacute Rheumatism*, Dr. Wright‡ thinks highly of the value of Liq. Potassæ, given according to the annexed formula:—℞ Liq. Potassæ fʒj.—fʒij., Infus. Buchu fʒviij., T. Hyoscyami fʒj., M. sumat. coch. amp. ij. ter in die. The bowels should, at the same time, be kept open with Pil. Rhei Co.

2216. *In Malignant Diseases of the Ovarics*, Dr. Seymour§ states that Liquor Potassæ, given in as large doses as the stomach will bear, has appeared to him to produce more alleviation than any other remedy, particularly in those tumours which are not attended by acute pain, or any considerable symptomatic fever. (Copland.)

2217. *In Jaundice*, connected with chronic enlargement, or malignant disease of the liver, the Liq. Potassæ may be given with the view of obtaining its liquefacient action. In such cases it may be advantageously combined with Conium. (Ibid.)

2218. *Obesity*, occurring in young and robust subjects, is, according to Dr. Chambers,‖ best treated by Liq. Potassæ, in doses of fʒss. gradually increased to fʒj.—fʒiss. thrice daily. Milk is the best vehicle. The chemical affinity of alkalies for fat, points them out as appropriate alteratives in this complaint; and experience has fully established their value. A rigid low diet, and active exercise, should be conjoined with their use. It is not a new remedy, having been pointed out by Dr. Flemyng,¶ in 1780.

* Lectures, vol. ii. p. 682.
† Med.-Chir. Rev., Jan. 1846.
‡ Clin. Lect., Med. Times, vol. xvi. p. 326.
§ On the Principal Diseases of the Ovaria, 8vo, 1830.
‖ Lancet, 1850, p. 128.
¶ Dissertation on Corpulency, Lond. 1780.

2219. *In Dropsical Affections*, Liq. Potassæ proves a valuable adjunct to other remedies, particularly to Digitalis and Squills; but, by itself, the influence which it exerts appears to be inconsiderable. *In Chronic Hydrocephalus*, it is sometimes productive of marked benefit.

2220. *In Bronchocele*, it will sometimes prove effectual, when other remedies, even Iodine, have previously failed. An instance is related by Mr. Hall,* in which Liq. Potassæ, in doses of ♏xv. gradually increased to ♏xxiv. effected a cure in three months. The Iodide of Potassium was applied externally at the same time, and it is therefore doubtful how far the Solution assisted in the cure.

2221. *Diseases of the Skin. In Lepra and Psoriasis*, Dr. Willan† speaks in the highest terms of Liq. Potassæ, particularly when these affections are connected with acidity of the primæ viæ, or occur in gouty subjects. Dr. Watson‡ speaks favourably of it, and Dr. Thompson§ regards it as almost a specific. It may be given in doses of ♏xv.—f℥ss. thrice daily. As an external application, Dr. Schedel‖ advises the following:—℞ Ol. Olivæ, Aq. Rosæ āā f℥j., Liq. Potassæ f℥ss. *In Porrigo Furfurans, and Porrigo Lupinosa*, the same treatment has proved very effectual. In *Eczema*, arising in connection with acidity of the stomach, Liq. Potassæ is a valuable remedy. It may also be used as an external application in the same disease. Dr. T. McCall Anderson¶ recommends that the eruption be painted with Liq. Potassæ night and morning, by means of a large brush. Excessive smarting may be relieved by the application of cold water. *In Acne Rosacea and Acne Simplex*, its internal exhibition, combined with small doses of Liq. Arsenicalis, is often highly serviceable. It should be given shortly after each meal. The same formula is occasionally useful in *Urticaria*. *In Ephelis and Freckles*, arising from exposure to the sun, Dr. Todd** advises the following lotion:—℞ Liq. Potas. f℥j., Aq. Rosæ f℥ij., M. ft. lotio.

2222. POTASSÆ NITRAS. Nitrate of Potash. KO, NO_5. Nitre. Saltpetre. A Compound of Potash 46·535, and Nitric Acid 53·465, in 100 parts; or, 1 Eq. Potash = 47 + 1 Nitric Acid = 54 = 101, Eq. Wt.

Med. Prop. and Action. The effects of the Nitrate of Potash depend, in a great measure, upon the state in which it is given, and upon the quantity of fluid in which it is dissolved; thus oz. j., either given in powder or dissolved in a small quantity of water, has produced inflammation of the bowels, and even death; whilst the same quantity, given in one or two quarts of water,

* Med. Gaz., Dec. 6, 1839.
† Cutaneous Diseases, p. 141.
‡ Lectures, vol. ii. p. 855.
§ Dispensatory, p. 1087.
‖ Lib. of Med., vol. i. p. 414.
¶ Med. Times and Gaz., July 11, 1863.
** Cyc. Pract. Med., art. Acne.

acts as a safe diuretic, and efficient refrigerant and diaphoretic. The physiological effects of this salt have been closely observed by Dr. Basham. He observes,—1, that in the majority of cases, Nitre produces no obvious effect upon the force and frequency of the pulse, the digestive functions, or the quantity of urine secreted; 2, that the urine always acquired a high specific gravity, 1030—1040, and that the Nitrate might be detected in it; 3, that blood, which before the exhibition of Nitre was cupped and buffed, lost much of these characters after its administration; and the salts, which were previously deficient, were found afterwards greatly increased in quantity. Other observers, amongst whom is Dr. Garrod,* find that it exercises a powerful sedative action on the heart and vascular system. As a vascular sedative, he directs that it should be given in doses of gr. xx.—gr. xxx. Dr. Stevens observed, that it communicates a bright arterial tint to venous blood, and that, when added to fresh drawn blood, it impedes coagulation. It is not improbable that it produces the same effect in blood in the living body. Dr. Flint found that under its use there was a considerable augmentation of the solids of the urine. Its diuretic effect is increased by copious dilution; its diaphoretic, by the addition of tartar emetic. Externally, it forms with the Hydrochlorate of Ammonia (oz. x. of the mixed Salts to Oj. of water) an excellent cold lotion. It is employed in solution as a gargle, linctus, and in the saline treatment of Cholera.

Dose, gr. v.—gr. xx.—gr. xxx.

Incompatibles. Sulphuric Acid, and the sulphates of most salts and metals; Alum; Baryta; Calomel; Corrosive Sublimate, &c.

2223. *Therapeutic Uses. In Acute Rheumatism*, large doses of Nitre (ʒx.—ʒij. daily) were employed, and advised by Brocklesby† in 1764; but the practice fell into disuse till recently, when it was re-introduced by the French physicians. Amongst others, Martin Solon,‡ Forget,§ Aran,‖ and Gendrin, have warmly advocated its use. In England, it has also met with many advocates. Dr. Bennett,¶ who witnessed the practice of Gendrin with it, speaks highly of its efficacy; and Dr. Basham** instituted a series of experiments in order to ascertain its real value. Amongst other conclusions he arrives at are,—1, That it is a most valuable and efficacious remedy in Rheumatism, when given in doses of ʒij.—ʒiij., in Oiv. of Barley-water, daily. 2, That it acts by restoring the saline constituents of the blood, and by lessening the excess of fibrine. 3, That there is a certain amount of exemption from cardiac complication, and that cardiac inflammation, when it supervenes, is more amenable to remedies. 4, That the tendency to collapse is much diminished, and the acute or inflammatory symptoms usually gave way on the third or fourth day. Some other general results are mentioned in the previous section, on the *Med. Prop. and Action*. This treatment certainly merits an extended trial, being simple, safe, and, in many instances, as my own experience

* Ess. Mat. Med. and Therap., p. 111.

† Œconomical and Medical Obs., Lond. 1764.

‡ Bull. de l'Acad. Roy. de Méd., t. ix. p. 130.

§ Ibid., t. xxv. p. 5.

‖ Journ. des Conn. Méd. Chirurg., April 1841.

¶ Lancet, Feb. 10, 1844.

** Ibid., Dec. 30, 1848.

testifies, efficacious. I have employed a saturated solution of Nitre as a lotion, to be kept constantly applied to painful and swollen joints, and have found it afford, in most instances, a great amount of relief. This may be used with advantage, whatever other internal treatment is adopted. Dr. Greiner,* of Leipzig, found a combination of salts more efficacious than simple Nitre, and advises the following formula :—℞ Pot. Nit. ʒj., Pot. Carb., Mag. Carb. āā ʒss., Sach. Lactis ʒvj., M. Dose, a teaspoonful, largely diluted, every two hours. (*Vide* the valuable remarks of Dr. Cargill, on large doses of Nitre, in the next section.)

2224. *In Chronic Rheumatism*, it was employed in 100 cases by Dr. Cargill.† Of the 100 thus treated, 61, or more than sixtenths, were cured, the average duration of treatment being $13\frac{3}{4}$ days. Twenty experienced great relief, but were not entirely cured; five were slightly relieved; three received no benefit; and three got worse. In the remaining eight, no positive conclusions could be arrived at. The usual dose commenced with in these cases was ℈ij. thrice daily, in barley-water; and this was adhered to, in many instances, throughout, but in a large number it was increased to ʒj., ʒiss., ʒij. thrice a day; and in one instance, ʒiij. every four hours was given without intermission for twelve days, without the smallest inconvenience to the patient, who was cured in that period. Dr. Cargill did not observe much advantage from combining it with other remedies. In some rare instances, it was found to create great constitutional disturbance, which rendered it necessary to discontinue the remedy. The symptoms were, general debility of the limbs, especially of the lower extremities; the knees, too, were particularly complained of: this symptom was sometimes very marked. There were also general tremblings, difficulty of speech, forgetfulness of the names of things, giddiness, and a painful rushing sound in the ears. These effects, which were generally observed in persons of a purely nervous temperament, subsided in a few hours by diuresis and copious perspiration. Dr. Cargill regards it as a point of great importance, that the remedy should be largely diluted with warm barley-water, not less than fʒviij. to each dose. In one case in which, by mistake, this point was not attended to, it produced intense griping, with pallor of the countenance, and cold perspiration, the pulse and heart's action much depressed, dry red tongue, with enlarged papillæ, and much thirst. In cases wherein Mercury has been previously extensively taken, and when the disease arises from Syphilis, whether Mercury has been taken or not, the Nitrate of Potash is without power. The Iodide is the remedy then applicable.

* Brit. and For. Med. Rev., Oct. 1842.

† Med. Gaz., Oct. 10, 1851.

2225. *In Scurvy*, the Nitrate, in common with the other salts of Potash, exercises a powerful influence. Dr. Cameron,* R.N., strongly recommends the Nitrate, in ʒj. doses; Vinegar at the same time being used as a drink. Dr. Garrod† endeavours to explain its efficacy on the ground that the Salts of Potash are deficient in the blood of scorbutic patients; but the theory has been stated by other observers to be untenable, no such deficiency having been proved to exist. The Carbonate (gr. xij.—gr. xx.) is preferred by some; but I have generally found the Nitrate (much more easily procured in the tropics) answer all the indications required. Should this, or the other Salts of Potash, not be obtainable, as in the case of prolonged sieges or long sea-voyages, I would suggest the employment of *Gunpowder*, which, from the large per-centage of Nitre which it contains, would doubtless prove an efficient anti-scorbutic. It has proved successful in the hands of Dr. A. Henderson;‡ and Dr. Stratton § justly observes, that any medicinal qualities which it possesses cannot be too well remembered, as in military and naval practice it is always to be obtained, when medicines cannot be procured.

2226. *In Purpura Hæmorrhagica, Purpura Simplex, and in Passive Hæmorrhage*, Nitre has been employed with great success by Dr. Carlyon.‖ In ordinary cases of Purpura Simplex, gr. x. thrice daily was found sufficient; but in more severe cases, gr. x.—ʒj., every two or three hours, was required. He advises its exhibition with an equal quantity of sugar, in cold water. The diet should consist chiefly of gruel, farinaceous food, barley-water, &c.

2227. *In Hæmoptysis, and other internal Hæmorrhages, accompanied by vascular excitement*, Nitre has been found a valuable resource, diminishing the arterial excitement and fever; but it should not be relied upon solely for the cure of the disease. Dr. Gibbon¶ relates numerous cases in which it produced unequivocal benefit. It may be given in doses of gr. viij.—x., several times daily, largely diluted, or combined with Tartar Emetic or Digitalis.

2228. *In Continued Fevers*, the Nitrate of Potash largely diluted proves an excellent refrigerant and diuretic. It may be flavoured to the taste, and used as an ordinary beverage. I have seen decided benefit from its use. In cases where this salt is not to be obtained, *Gunpowder* may be substituted; both Dr. Craigie** and Dr. Dick†† have used it with benefit as a corrective to some disordered states of the stomach in fever; the charcoal,

* Med.-Chir. Rev., March 1830.
† Prov. Med. Journ., Dec. 13, 1848.
‡ Edin. Med. Surg. Journ., July 1839.
§ Ibid., July 1, 1845.
‖ Prov. Med. Journ., Dec. 13, 1848.
¶ Med. Cases and Reports, part ii.
** Practice of Physic, vol. i. p. 137.
†† Edin. Med. Surg. Journ., Jan. 1839.

from its antiseptic property, may also prove useful. (See also Scurvy.) The first dose or two is apt to be rejected.

2229. *In Dropsy and Dropsical Affections*, Nitre proves of great service as a diuretic, particularly when combined with Squills and other remedies of the same class. Dr. Delreyne * derived great benefit from the following mixture:—℞ Potas. Nit. ʒiij., Baccar. Juniper. ʒxv., Vin. Albi Oiss., M. Dose, ʒiss. daily.

2230. *In Dyspepsia* attended with vascular excitement of the mucous membranes, Dr. Todd † advises the Nitrate of Potash, in doses of gr. v.—x. thrice daily, in water or mucilage. It has been found a remedy of considerable value. Dr. W. Philip's formula is often very efficacious in these cases:—℞ Potas. Nit. gr. v., Ext. Tarax. gr. xv., Infus. Rhei fʒx., T. Lavand. Co., Spt. Ammon. A. āā fʒss., T. Hyoscyami ♏xv., M. ft. haust.

2231. *In Spasmodic Asthma*, great temporary relief occasionally results from the inhalation of the fumes of burning Nitre. For this purpose immerse thick porous paper in a saturated solution of Nitre, and hang it up to dry. When a paroxysm approaches, the patient should inhale the vapour, by burning it in the room, or by smoking it in a tobacco-pipe. Used in the latter way, I have seen it productive of much temporary benefit. In some cases it fails altogether.‡ It may also prove useful given in the manner directed in the next section.

2232. *In Acute Bronchitis*, Dr. Graves § speaks highly of the value of a combination of the Nitrate of Potash and Tartar Emetic, both antiphlogistic remedies, and calculated to act with peculiar effect in relieving congestion of the bronchial mucous membrane. He prescribes the following mixture:—℞ Mist. Amyg. fʒxij., Potass. Nit. ʒij., Ant. Pot. Tart. gr. j., T. Camph. Co. fʒss., M. Dose, a tablespoonful every hour.

2233. *In Incontinence of Urine in Children*, Dr. Young,‖ of Chester, found Nitre, in doses of ʒss. daily (for children seven years old) very efficacious. He considers that it acts as a stimulant to the bladder or its sphincter.

2234. *In Menorrhagia*, Dr. Waller¶ considers the Nitrate as a most effective depressant. After premising blood-letting and laxatives, he advises this salt, in doses of gr. xv.—ʒss., well diluted with barley-water. *In Dysmenorrhœa*, he also found it highly serviceable. It is an old remedy, and one too much neglected.

2235. *In Leucorrhœa*, Dr. Dewees** states that in some obsti-

* L'Expérience, 1842.
† Cyc. Pract. Med., vol. ii. p. 652.
‡ See New York Gaz., 1845.
§ Clin. Lect., vol. ii. p. 10.
‖ Lancet, Dec. 10, 1844.
¶ On Diseases of the Womb, p. 50, et seq.
** On Diseases of Females, p. 75.

nate cases he effected a cure with the following formula:—℞ Potas. Nit. gr. x., Alum gr. v., M. ft. pulv. ter in die sumend. *In Gonorrhœa*, it proves useful, when given largely diluted, in relieving the ardor urinæ.

2236. *In Amenorrhœa*, it has been advised, but it does not appear to merit much confidence. It may be given in doses of gr. xx.—gr. lx., largely diluted with any bland fluid.

2237 *Incipient Inflammatory Sore Throat* is often removed by allowing a small portion of Nitre to dissolve slowly in the mouth. (A. T. Thompson.*)

2238. *To Nævi Materni and other Erectile Tumours*, Dr. Mangenot† found the local application of the powdered Nitrate rubbed lightly over the surface effectual in causing their removal.

2239. *In Purulent Ophthalmia* attended with much pain and heat, a bread and milk poultice, moistened on the surface with a strong solution of Nitre, is highly spoken of by Dr. Roquetta,‡ as a sedative.

2240. POTASSÆ PERMANGANAS. Permanganate of Potash. KO, Mn_2O_7. A compound of Potash and Permanganic Acid occurs in the form of dark purple, slender, prismatic crystals of a sweet astringent taste.

Med. Prop. and Action. Alterative (?) in doses of gr. j.—iv. thrice daily in solution. Given internally, it has been supposed to possess the power of oxidating the blood. Externally applied, it acts as a caustic and deodorizer. It is a most valuable antiseptic agent, from the fact that it readily parts with Oxygen to any organic matter with which it is brought in contact.

Offic. Prep. Liquor Potassæ Permanganatis (Permanganate of Potash grs. iv.; Distilled Water fl. oz. j.). This solution has half the strength of Condy's Disinfecting Fluid. (Squire.§) For external application, fl. drm. j. of the solution is to be added to from 5 to 10 fl. oz. of Water.

Dose of the Permanganate, gr. j.—iv.

2241. *Therapeutic Uses. In Diabetes*, it was introduced by Mr. Sampson‖ as a remedy on theoretical grounds. He considered that the Oxygen given off by it, when introduced into the stomach, would assist the imperfect action of the digestive and assimilative functions. In two cases, however, in which it was tried by Dr. Basham,¶ it was productive of little benefit. He found that during its administration the amount of sugar excreted gradually increased, though the quantity of urine was diminished and the thirst alleviated. No inconvenience attended its use in even ten-grain doses; indeed it seemed of benefit in

* Dispensatory.
† Bull. Gén. de Thérap., Jan. 1857.
‡ Brit. and For. Med. Rev., Jan. 1846, p. 164.
§ Companion to British Pharm., p. 150.
‖ Lancet, Jan. 8, 1853.
¶ Ibid., Jan. 21, 1854.

relieving the gastric symptoms. It failed also in the hands of Dr. Bence Jones.*

2242. As an application to *Cancerous and Ill-conditioned Ulcers*, it has been favourably reported of by Mr. Weedon Cooke, Dr. Girdwood, and others. In these cases it acts in the double capacity of caustic and deodorizer. It acts with less pain than most escharotics. For this purpose it may be sprinkled over the ulcerated surface by means of a pepper-box. As a simple deodorizer, the Liq. Potassæ Permanganatis diluted as above may be used. In *Fœtid Discharges from mucous surfaces*, a weak solution of the Permanganate forms an excellent injection. It may also be used as a gargle in *ill-conditioned Ulceration of the Tonsils and Throat.*

2243. POTASSÆ SULPHAS. Sulphate or Neutral Sulphate of Potash. KO, SO_3. *Comp.* Potash 54·55, Sulphuric Acid 45·45, in 100 parts; or 1 Eq. Potash = 47, + 1 Sulphuric Acid = 40 = 87, Eq. Wt. It is slightly soluble in water.

Med. Prop. and Action. In doses of gr. xv.—gr. lx., it is a safe and efficient aperient, particularly when combined with Rhubarb (Pot. Sulph. gr. xxx.—gr. lx., Pulv. Rhei gr. v.—x.), but in large doses, as oz. j.—oz ij., it appears to act as a violent irritant; so much so, that death has followed its incautious use. Mr. Mowbray† states that it is much employed in France, as a popular abortive, and he quotes several instances in which it produced severe symptoms, and even death. In one case he found 3ij. act powerfully; and in another, 3iv. administered to a lady after her confinement, produced all the effects of an irritant poison. The French physicians attribute to this salt the power of *repressing the secretion of milk.*

Offic. Prep. Pulvis Ipecacuanhæ cum Opio. (See art. PULV. IPECAC. CUM OPIO.)

Dose, gr. x.—gr. lx.

Incompatibles. Tartaric Acid; Acetate and Diacctate of Lead; the Chlorides of Barium and Calcium.

2244. *Therapeutic Uses. In Dyspeptic and Hepatic Affections*, the Sulphate of Potash is a safe and efficient aperient, acting in most cases mildly, and without hypercatharsis. It may be advantageously combined with rhubarb or aloes. Dr. A. T. Thompson‡ says that he has found it more useful than the other saline purgatives, in *Jaundice and Dyspeptic Affections.*

2245. *In Gastric Remittent Fever*, when it assumes a chronic form, the Sulphate of Potash is advised by Denman, Underwood, Butler, and Pemberton. They agree in considering that it is peculiarly adapted to meet the indications, by relieving the fever, improving the secretions, and quickening the action of the bowels and kidneys. The quantity must, of course, depend upon the age and strength of the patient; but from two to three evacua-

* Med. Times, Feb. 4, 1854.
† Med. Gaz., vol. xxxiii. p. 54.
‡ Dispensatory, p. 1100.

tions will be desirable daily. It may be combined with, or followed by rhubarb or other mild aperients. (Dr. Locock.*)

2246. *In Albuminuria*, the neutral saline purgatives, particularly the Sulphate of Potash, are advised by Dr. Heaton.† They should be given, he observes, in rather a concentrated solution, which then determines an endosmosis of the watery part of the blood into the intestine from the blood-vessels, which, thus deprived of their natural tension, become actively absorbent of the dropsical effusion which they had before allowed to escape. But if the saline be given much diluted, or followed by much drink, it then enters the blood and acts upon the kidneys.

2247. *In Hæmorrhoids*, small doses of the Sulphate prove useful as a mild laxative.

2248. POTASSÆ TARTRAS. Tartrate of Potash. 2 KO, $C_8H_4O_{10}$. Tartarized Tartar. A compound of Potash 41·593, and Tartaric Acid 58·407, in 100 parts.

Med. Prop. and Therap. Uses. In doses of gr. cxx.—oz. ss., it is purgative, producing watery evacuations; in smaller doses (gr. lx.—gr. cxx.), diuretic. "It acts," observes Dr. Thompson,‡ "on the whole intestinal canal, operates rapidly without much griping, is mild and efficient, and lessens the griping quality of Senna and Scammony." When taken internally, it is absorbed into the circulation, and has been detected in the urine, in the form of a carbonate. It is chiefly used as a mild purgative *in dyspeptic and hepatic affections, attended with some slight increased or febrile action*, and as a certain means of rendering *acid urine alkaline*. (See POTASSÆ CITRAS.)

Incompatibles. Acids; Acidulous Salts; Tamarinds, and other sub-acid fruits; Lime-water; Chloride of Calcium; Magnesia; Nitrate of Silver; Acetate and Diacetate of Lead.

2249. POTASSÆ TARTRAS ACIDA. Acid Tartrate of Potash. HO, KO, $C_8H_4O_{10}$. Potassæ Bitartras. Bitartrate of Potash (Pharm. L., E., D.). Called, also, Supertartrate of Potash. Cream of Tartar. *Comp.* Potash 25·00, Tartaric Acid 70·21, Water 4·79, in 100 parts; or 1 Eq. Potash 47, + 1 Eq. Tartaric Acid = 132, + 1 Water = 9 = 188, Eq. Wt.

Med. Prop. and Action. In doses of gr. xx.—gr. lx., frequently repeated and largely diluted, it acts as a refrigerant and diuretic, communicating alkaline properties to the urine, in which it has been detected in the form of carbonate. In doses of gr. lx.—gr. cxx., it acts as a mild aperient; and in larger doses as a hydragogue cathartic. Dr. A. T. Thompson§ observes, that it operates more on the smaller intestines than the Tartrate, producing watery stools and flatulence, and, in some persons, griping. From its hydragogue, purgative action, it is advantageously prescribed in dropsical affections. If its use be continued for too long a period, it induces emaciation and derangement of the digestive organs. *Post-mortem* examinations of persons who have died from over-doses show extensive inflammation of the stomach and intestines. When its purgative action is desired, it is best given combined with other purgatives; of these, Jalap, in the form of Pulv. Jalapæ Co., is the best which can be employed. Dissolved in water and flavoured, it makes

* Lib. of Med., vol. i. p. 285.
† Prov. Journ., April 4, 1849.
‡ Cyc. Pract. Med., art. Cathartics
§ Ibid., vol. i. p. 371.

a good refrigerant drink in fevers, &c. Gr. clxxx. of the Bitartrate, and gr. cxx. of the Carbonate of Soda, both in solution, and mixed, form an agreeable effervescing aperient.

Offic. Prep. 1. Confectio Sulphuris (Sublimed Sulphur oz. iv. ; Acid Tartrate of Potash in powder oz. j. ; Syrup of Orange Peel fl. oz. iv. Rub them well together). Dose, gr. xxx.—gr. cxx.

2. Pulvis Jalapæ Compositus (Powdered Jalap oz. v. ; Acid Tartrate of Potash oz. ix. ; Powdered Ginger oz. j.). Dose, gr. xx.—gr. lx.

Dose of Bitartrate of Potash: as a refrigerant and diuretic, gr. xx.—gr. lx. ; as a purgative, gr. lx.—gr. clxxx.

Incompatibles. Acids and Acidulous Salts ; Alkalies and their Carbonates ; the Salts of Lead, Silver, and Copper.

2250. *Therapeutic Uses. In Dropsical Affections*, the Acid Tartrate, either alone or combined with Digitalis, Squills, &c., is a very valuable remedy. It increases the quantity of urine, produces copious watery stools, and, in some instances, lessens the dropsical swelling in a marked manner, in a few days. In others, this effect is not seen for three or four weeks. Dr. Hope,* who speaks highly of its efficacy, advises that its use should be occasionally intermitted, as, if long continued, it appears, in some instances, to lose its diuretic powers. As a purgative, Dr. Watson† advises ʒss. of this salt, dissolved in Aq. Menth. Pip. fʒvj., to be given in one dose every morning, or in combination with Gamboge, thus :—℞ Cambog. gr. j.—ij., Potas. Bitart. ʒj., Aq. Menth. P. fʒij., M. ft. haust. bis terve die sumend.

2251. *In Inflammatory Dropsy*, Dr. R. B. Todd‡ speaks highly of the value of this salt, given in doses of ʒss.—ʒj., frequently during the day. He prefers it to Squills, Cantharides, &c., as causing much less irritation. If larger doses are employed, it acts on the bowels, and, being carried off by them, does not prove so powerful a diuretic.

2252. *In Albuminuria*, Cream of Tartar, given in such doses as to purge freely, is favourably spoken of by Dr. Heaton§ and others. In many cases, it appears to produce at least temporary benefit. Besides acting on the bowels, a portion is carried into the system, and may operate favourably on the kidneys.

2253. *In Hepatitis*, various remedies have been proposed to procure a free discharge of bile, and to prevent suppuration, after blood-letting and vascular depletions have been carried sufficiently far. "Amongst these remedies," observes Dr. Copland,‖ "the Bitartrate of Potash is the most efficacious in promoting a discharge of bile, in removing viscid and tenacious secretions, from the intestinal mucous surface, and in lowering inflammatory action." It should be prescribed in full doses, from gr. lx.—oz. ss., twice or thrice daily, in the form of

* Cyc. of Pract. Med., vol. ii.
† Lib. of Med , vol. v. p. 135.
‡ Lectures, Med. Gaz., April 6, 1849.
§ Prov. Journ., April 4, 1849.
‖ Dict. Pract. Med., vol. ii. p. 745.

electuary; and it is often advantageously conjoined with small doses of tartarized Antimony, or with the Biborate of Soda, &c., according to circumstances. In some cases, it is advisable to prescribe the salt during the day, and to administer a mercurial at night.

2254. *In Dysentery*, the Acid Tartrate, finely levigated and given to the extent of gr. clxxx.—oz. ss. every six hours, in the form of electuary, with the pulp of tamarinds and syrup of Ginger, will often open the bowels, and procure the excretion of bile, when other means fail. The practice was recommended by Selle, and was found to succeed in some hopeless cases, by Dr. Cheyne. According to Dr. Copland,* it is more efficacious after the exhibition of mercurials; and, when the substance of the liver is acutely affected, may be depended upon as an appropriate refrigerant purgative. The efficacy of the Pulvis Jalapæ Co. in this disease depends mainly upon the presence of this salt.

2255. *In Beriberi*, Dr. Malcolmson† observes, that, "of all diuretics, none is so generally successful, and universally useful, as Cream of Tartar, which has generally been adopted by experienced practitioners in Beriberi. Its laxative effect, grateful taste, and soothing qualities are powerful recommendations, in addition to the direct benefit from its diuretic powers." He advises its exhibition in any simple bland vehicle, and to make it a common drink. Mr. Ridley, who strongly advocated this salt, advises its exhibition in punch or gin.

2256. *In a Thickened Condition of the Valves of the Heart, and in some Chronic Diseases of the Heart*, a powerful diuresis acts beneficially as a derivative. Dr. Hope‡ states that, in this class of diseases, when the urine is high-coloured and scanty, he has found this salt a valuable auxiliary to other treatment. It should be given in doses of gr. lx.—gr. clxxx. daily, in divided doses.

2257. *In Fevers and Inflammatory Attacks*, an agreeable and useful refrigerant drink is formed by dissolving gr. lx.—gr. xc. of Potas. Tart. Acid. in Oj. of boiling water, and flavouring with lemon-peel and sugar. It may be used as a common drink.

2258. *In Piles and Prolapsus Recti*, Potas. Tart. Acid., given with an equal quantity of Sulphur, proves useful. Its effect is rendered more certain by the addition of Conf. Sennæ. Much of the benefit in these cases is doubtless due to the Sulphur; but I am inclined to think that the Cream of Tartar bears no insignificant share also, having frequently observed that in *Chronic Dysentery*, when the stools are loaded with mucus,

* Dict. Pract. Med., vol. i. p. 728.
† On Beriberi, &c., p. 274.
‡ Cyc. Pract. Med., vol. iv. p. 430

this is greatly diminished by the exhibition of the Acid Tartrate of Potash alone.

2259. *In Rupia*, Rayer* considers that one of the best local applications is Cream of Tartar, finely powdered, and well dusted over the ulcerations.

2260. Potassii Bromidum. Bromide of Potassium. KBr. Hydrobromate of Potash. *Comp.* 1 Eq. Bromine = 80 + Potassium = 39 = 119, Eq. Wt.; or Bromine 67·22, and Potassium 32·78, in 100 parts.

Med. Prop. and Action. Stimulant, alterative, anaphrodisiac, and deobstruent. Its action is similar to, but milder than that of Iodide of Potassium. When administered internally, it is absorbed into the system, and has been detected in the blood and in the urine. "Its action," observes Dr. Glover,† "is exceedingly obscure; it acts in most cases as a diuretic, occasionally produces diarrhœa, and possesses somewhat of that action on the secretions and excretions, which renders the corresponding iodide so powerful a deobstruent." Dr. Garrod,‡ however, states that he has not found it exert any marked action on the kidneys or skin. In large doses, it may give rise to drowsiness and headache; and in still larger, it produces loss of power in the lower extremities, and exerts a remarkable influence over the sexual function, which it diminishes in a remarkable degree. As an anaphrodisiac its powers are unequivocal. It is perhaps one of the most powerful agents of that class. It also exerts an anæsthetic influence over the mucous membranes generally, but especially over those of the pharynx and larynx,—a circumstance which has been taken advantage of in preparing patients for laryngoscopic examinations and operations. As an instance of its power in producing anæsthesia of a mucous surface, M. Riemslagh§ cites the case of a man whose eyes had been injured by the discharge of a pistol. Under the use of the Bromide, the insensibility of the conjunctiva became so perfect that the membrane was partially removed, and particles of powder, &c., extracted from the sclerotic itself, without the least manifestation of pain. To obtain this effect, it requires to be given in large doses, gr. xv.—xxx., in two or three doses, at intervals of an hour. Some persons whilst taking it experience a peculiar dryness of the throat and neighbouring parts. According to Dr. Garrod, it does not produce the symptoms of the condition known as "Iodism." Externally, it is applied in the form of ointment (gr. xx.—gr. cxx., ad Adipis oz. j.).

Dose, gr. iij.—gr. xv., or even more.

Incompatibles. Acids, and the salts of most metals and earths.

2261. *Therapeutic Uses. In Scrofula*, the Bromide, employed internally and externally, proved successful in the hands of MM. Bonnet,‖ Magendie,¶ Pourché,** and others. Dr. Glover relates several cases treated by it; in some, particularly in one case of scrofulous ulcer of the leg (No. 7), it was productive of great benefit; but in others the results were unsatisfactory.

2262. *In Enlargements of the Spleen*, Dr. R. Williams†† employed the Bromide successfully in four cases. He commenced

* On Diseases of the Skin, 8vo. 1835.
† Edin. Med. Surg. Journ., Oct. 1, 1842, p. 340.
‡ Med. Times and Gaz., March 12, 1864.
§ Medical Circular, Oct. 15, 1862.
‖ Bull. Gén. de Thérap., July 1837.
¶ Formulary, 1835.
** Journ. de Chim. Méd., iv. p. 594.
†† Elements of Med., vol. i. p. 336.

with gr. j. thrice daily, and gradually increased the dose to gr. iv. He considers that in these cases it is possessed of unusual, if not specific, powers. In other hands, it has occasionally failed. *In Enlargement of the Liver*, it was also found serviceable.

2263. *In Epilepsy*, it has been highly spoken of by Dr. C. B. Radcliffe, Dr. Ramskill,* Dr. H. Jackson, and others. In cases uncomplicated by loss of memory and other symptoms of serious cerebral affection, Dr. Radcliffe has found excellent results from the Bromide. In such cases it may be administered in doses of gr. x.—xx. three times a day. It seems to have the power of keeping the fits off for long periods—months, or even a year. But they return when the drug is given up. Its anaphrodisiac properties indicate it as a remedy for *Epilepsy* dependent on masturbation. It has been prescribed in *Epilepsy following Diphtheria*, by Dr. Ramskill.†

2264. Besides the above, it has been employed in *Amenorrhœa and Hypertrophy of the Ventricles*, by Magendie; *in Carbuncle*, by Mr. Bennett; *in Tinea Capitis*, by Prieger; and *in obstinate Dartrous Affections, and Malignant Ulcers*, by Dr. Glover.‡ *In the Incontinence of Urine in Children*, Dr. Hewson§ tried the Bromide (gr. iiss.—iij. thrice daily) in sixty-three cases: of these nine were cured and four were benefited; the other fifty derived no benefit. *In Gonorrhœa*, M. Riemslagh‖ found the Bromide an effectual cure in doses of gr. xv.—xxx. taken in two or three doses at intervals of an hour. It effectually relieved the *Chordee* in these cases. *In Hysterical Epilepsy*, occurring at the menstrual periods, Sir C. Locock¶ successfully employed the Bromide in doses of gr. x. thrice daily. To be effectual it requires to be persevered in for some months. It acts in a marked manner in subduing generative excitement; and it may be given with advantage in *Nymphomania*, *Priapism*, and some forms of *Spermatorrhœa*, and in *Menorrhagia* depending on uterine and ovarian excitement. In *Syphilitic Psoriasis and other Syphilitic Eruptions*, Dr. Garrod** has substituted it for Iodide of Potassium with complete success.

2265. Potassii Cyanidum. Cyanide or Cyanuret of Potassium. KCy. (*Off.* Ph. U.S.)

Med. Prop. and Action. It is regarded as a direct sedative, but from its powerfully poisonous action, which is not inferior to that of Prussic Acid, its use requires the greatest caution. Externally, it is prescribed in the form of

* Med. Times and Gaz., Aug. 29, 1863, and Feb. 13, 1864.
† Med. Times and Gaz., Nov. 28, 1863.
‡ Op. cit.
§ Amer. Journ. of Med. Sci., Oct. 1858.
‖ Op. cit.
¶ Medical Times and Gaz., May 23, 1857.
** Op. cit.

ointment (gr. ij.—v. ad Adipis oz. j.), or in solution (gr. j.—iv. ad Aq. fl. oz. j.).' It has been proposed as a substitute for Hydrocyanic Acid.

Dose, said to be from gr. ½—¼, but it should not be given internally, as all its effects can be produced by the medicinal Prussic Acid. Different specimens of the Cyanide of Potassium vary considerably in purity, and consequently in strength.

2266. *Therapeutic Uses. In Neuralgic Affections*, its external application is highly spoken of by Buttigny, Roubiquet, Villaumy, Bally, and Lombard, of Geneva. It was employed of the strength given above. It was found inefficient in Sciatica, and in Neuralgic Affections complicated with inflammation. The few experiments made with this remedy in England have not prepossessed practitioners with any very strong opinion of its efficacy. (Dr. Theo. Thompson.*) *In Rheumatic Muscular Affections of the Head*, M. Valliex† found great benefit from its external application.

2267. *In Pruritus Pudendi, vel Scroti*, when the itching is violent, Dr. Schedel‡ found that the Cyanide ointment, with the addition of a few grains of Pulv. Opii, occasionally afforded great relief. To allay irritation in *Eczema*, the following ointment is recommended by Dr. T. McCall Anderson:§—℞ Potassii Cyanidi gr. vj.; Cerati Galeni (Paris Codex) ʒj.; Cochinillini gr. j., M. A little to be rubbed firmly over the parts that are itching, but none of the ointment to be allowed to remain undissolved on the skin.

2268. Potassii Iodidum. Iodide of Potassium. KI. Called also the Ioduret of Potassium, and Hydriodate of Potash. *Comp.* 1 Eq. Iodine=127+1 Potassium=39=166, Eq. Wt.

Med. Prop. and Action. Are closely analogous to those of Iodine. Like it, it occasionally produces headache, flushing of the face, and gastric irritation; and when taken in too large doses, it produces coryza, and, in some cases, salivation and emaciation of the testes and mamma, but these latter effects are rare. M. Dorvault,‖ who has examined closely the action and properties of the Iodides, observes, that if the animal fluids (blood, lymph, semen, and milk), or their proteine elements (albumen, fibrin, and casein) be subjected to the action of a solution of Iodide of Potassium, it will be seen to prevent their coagulation, and will dissolve them. In producing this effect, the salt remains unaltered; it acts, therefore, by what chemists have called the *catalytic* force. The same result may be shown to have been obtained, when employed in certain pathological cases. The salt may be detected unaltered in the blood, or urine, or other secretions. These facts have been observed by many other investigators, and all have found practically, that the Iodide of Potassium promotes secretion, and increases the function of the mucous glands of the alimentary canal, of the liver, kidneys, skin, pancreas, parotid, &c. It is rapidly eliminated from the animal fluids. Dr. Scharlau found that a patient to whom he gave 53 grammes daily, eliminated 51 by his urine; the other two by the saliva, sweat, and tears. Dr. Kramer satisfied

* Lib. of Med., vol. ii. p 270.
† Brit. and For. Med.-Chir. Rev., Jan. 1849.
‡ Lib. of Med., vol i. p. 411.
§ Med. Times and Gaz., July 11, 1863.
‖ Iodognosie, Paris, 1852.

himself by his experiments, that six days sufficed for the complete elimination of this salt, after its exhibition during fifty days. *As a lactifuge*, the Iodide is stated by M. Rousset* to prove very effectual. In order to obtain this effect, it requires to be given in full doses, within the first or second day after delivery. According to Mr. J. Paget,† the addition of Ammonia to the Iodide greatly increases its power. The dose has been a matter of dispute; some exhibiting it in very small doses (gr. ij.—iij.), whilst others have given as much as gr. lx., or even gr. cxx. for a dose. I have invariably observed, that if gr. iij.—iv. thrice daily fail to produce benefit, larger doses were equally ineffectual. All the advantages to be expected from the remedy, will be derived from gr. xij.—xv. daily. Opium appears to interfere considerably with the development of its action. Externally, it may be advantageously applied in the form of ointment. It is mildly stimulant, discolours the skin, and, in some instances, causes much irritation. It should be used freshly prepared, as if kept long it is apt to spoil. (See also IODUM.)

Offic. Prep. 1. Linimentum Iodi. (See IODUM.)
2. Tinctura Iodi. (See IODUM.)
3. Unguentum Iodi Compositum. (See IODUM.)
4. Unguentum Potassii Iodidi (Iodide of Potassium grs. lxiv.; Distilled Water fl. drm. j.; Prepared Lard oz. j. Dissolve the Iodide in the Water, and mix thoroughly with the Lard).

Dose, gr. j.—gr. v., or more (*ante*).

Incompatibles. Acids, and the salts of most metals and earths.

2269. *Therapeutic Uses. In Scrofula and Scrofulous Affections*, the Iodide, given uncombined with other remedies, does not appear to exercise any great influence; but when combined with Iodine, it is essentially useful, and appears to increase the activity of the latter remedy, in addition to rendering it more easily soluble. It should be employed both externally and internally. Lugol found that baths, holding in solution the Iodide alone, produced no sensible effect on the skin, or on the constitution.

2270. *In Bronchocele*, the Iodide, used externally and internally, proves highly serviceable. Prof. Porta‡ employs a saturated solution of the salt, mixed with lard. From ten to fifteen frictions with this, he states, will be sufficient to judge of its effects; the absorption through the cuticle is perfect. At the same time, he administers the Iodide internally, commencing with gr. viij. daily, and increasing the dose to ℈j. or ʒss., or even ʒj. daily. He considers it preferable to the Tincture of Iodine.

2271. *Chronic Hydrocephalus.* From the frequency of the tubercular origin of this disease, we should, *à priori*, expect benefit from Iodine and its salts. Dr. Willshire speaks favourably of its internal use (see IODUM); and Mr. Rowland Hoskins§ relates a very aggravated and apparently hopeless case, which yielded to the Iodide, in doses of gr. ss. every four hours. Scammony was at the same time given as a purgative. Another case,

* Gaz. Hebd. de Méd., Sept. 17, 1858.

† Med. Times and Gaz., Jan. 4, 1862.

‡ Brit. and For. Med. Rev., Jan. 1851.

§ Ranking's Abstract, vol. xiii. p. 331.

illustrative of the efficacy of this salt, is related by Dr. Guerond.* Dr. Copland,† also, states that he has prescribed it in small doses with evident advantage. In the *Acute form* of the disease it is also a valuable remedy, and may be given to young children in doses of gr. j. every four hours. Dr. Coldstream‡ bears witness to its value in subduing the symptoms indicative of a tendency to hydrocephalus, especially when occurring in scrofulous subjects. *In the Convulsions attendant on Dentition*, which, amongst ill-fed children, are often followed by hydrocephalus, he found great advantage from its use. He gave gr. $\frac{1}{3}$—gr. iij. every three or four hours in some carminative water; blisters to the scalp were used at the same time.

2272. *In Scrofulous Ophthalmia*, the Iodide, in combination with Quinine, is one of the most efficacious remedies we possess. In *Catarrhal Ophthalmia*, it has also proved signally useful in the hands of Mr. Osbrey.§ Dr. Copland states that he has successfully employed the Iodide of Potassium and Iodine in *Amaurosis, connected with Paralysis*. Two of the cases in which it proved effectual were consequent upon apoplectic seizures.‖ *In Sclerotitis, and in Sclero-iritis*, Dr. Macdonell,¶ of Montreal, speaks highly of the efficacy of the Iodide, in doses of gr. viij.—xv. thrice daily; the statements of its efficacy are corroborated by Mr. Howard,** of the same city, who observes that, in acute Sclerotitis, he has found it a most valuable remedy, and that in Chronic cases it rarely fails. *In Chronic Iritis*, Mr. Howard also found the greatest benefit from the administration of the Iodide. Light but nutritious diet, and exercise in the open air, are, he adds, very necessary towards the accomplishment of a cure.

2273. *Looseness of the Teeth, depending upon Periostitis of the Alveolar Processes*, known by the great pain, swelling, and sponginess of the gums, is often effectually cured by the Iodide of Potassium. Dr. Graves†† relates an illustrative case which was completely cured by this salt, in doses of gr. x. thrice daily.

2274. *In Syphilis*, the Iodide has been extensively employed by Hassing, Gaunthier, Moj'sisovics, Forbes, R. Williams, Acton, Graves, Wallace, Todd, and others, who express a high opinion of its value. Sir B. Brodie, on the other hand, expresses himself doubtful of its efficacy; and Ricord altogether denied its utility. Its value, however, is at present generally admitted. The results of

* Amer. Journ. of Med. Sci., 1851.
† Dict. Pract. Med., vol. i. p. 675.
‡ Edin. Med. Journ., Dec. 1859.
§ Dub. Journ., vol. xxi. p. 417.
‖ Dict. Pract. Med., vol. i. p. 61.
¶ Brit. Amer. Journ. of Med. and Phys. Science, Nov. 1849.
** Pathology of the Eye, pp. 316, 340.
†† Dub. Journ. of Med., vol. xviii. p. 238.

Dr. Hassing's* treatment are well worthy of attention. In all cases of primary Syphilis, it was employed without any apparent benefit; but in secondary and constitutional forms, the results were highly satisfactory. In 1838-9, he had under his care 250 cases of the latter class; all the patients were treated alike, on low diet, and the remedy was given in the same form to all, namely, gr. viiss., dissolved in fʒss. of water thrice daily. Of the 250 patients, 145 were perfectly cured; 49 imperfectly cured; and 56 derived no benefit. The mean duration of treatment was 38 days. In cases of relapse, the same system was adopted. Of 73 cases of *Syphilitic pains of the bones*, 65 were perfectly cured; 3 relieved; 5 derived no benefit. Of 17 cases of *Syphilitic Caries and Necrosis*, 6 were cured; 4 relieved; 7 derived no benefit. Of 51 cases of *Syphilitic Tumours or Nodes*, 6 only were cured; in 22, the tumour diminished; in 23, it produced no effect. Dr. R. B. Todd,† who speaks of it in the highest terms in this class of cases, observes that, if there be anything in addition to Quinine which deserves the name of a specific, it is the Iodide of Potassium, in *Syphilitic Periostitis*. He adds, if you have a pure case, it acts like a charm; so that the treatment materially aids the diagnosis, for we may fairly set it down as a fact, that if the symptoms yield completely and at once to the influence of the Iodide, the disease is essentially Syphilitic. Its effect, however, is not always permanent. The same results have been observed by Acton, Williams, Wallace, and others. *In Affections of the Nervous System depending on Constitutional Syphilis*, the Iodide, either alone or after a course of Mercury, has been prescribed with success by Dr. Russell.‡ Dr. H. Jackson§ relates a case of *Unilateral Chorea* occurring in a child who gave evidence of syphilitic taint, which was cured by a prolonged use of the Iodide. *In Syphilitic Diseases of the Skin*, it has also proved, in the highest degree, beneficial, given in doses of gr. iij. —v., in decoction of Sarsaparilla. Mr. Acton‖ states that *in Syphilitic Diseases of the Scalp, in Lepra, Psoriasis, and Impetigo*, he has found it most efficacious; and Mr. Mayo found that *Lichen, arising from Syphilis*, yielded rapidly to its use. Dr. Graves considers that it is the best remedy we possess in this class of diseases. *In Strictures of the Urethra connected with Gonorrhœa*, Dr. Thielmann¶ extols the internal administration of the Iodide thus :—℞ Pot. Iod. ʒij., Aq. Dest. fʒvss., M., coch. amp. j. ter in die. At the same time he orders a rigid milk diet. When Iodic symptoms present themselves, the dose is diminished.

* Brit. For. Med. Rev., Oct. 1845.
† Med. Gaz., Jan. 3, 1851.
‡ Med. Times and Gaz., Oct. 17, 1863.
§ Ibid.
‖ Lectures on Venereal Diseases, Lancet, Jan. 16, 1846.
¶ Journ. Pract. Med. and Surg., June 16, 1859.

All mechanical means are discarded; but when the inodular of the stricture is felt externally, an ointment (ʒj. ad Ung. ʒj.) is rubbed in along the part of the penis corresponding with the urethra.

2275. *In Gout, Rheumatic Gout, and Arthritic Enlargements*, the external application of a solution of the Iodide is strongly advised by Dr. Horne,* who states that he has employed it constantly for eight years, and that he has invariably found it to afford relief. At the same time he advises the following mixture:—℞ Pot. Nit. ʒiv., Ant. Pot. Tart. gr. ij., Spt. Ether. Nit. fʒj., Aq. fʒxj., M. sumat. coch. amp. iij. ter in die. The local application of a solution of the Iodide is also favourably spoken of by Dr. Basham.† In some cases, particularly when the disease occurs in persons of a scrofulous diathesis, or in debilitated constitutions, or where the liver is evidently in fault, the Iodide proves an efficacious internal remedy. Dr. Robertson‡ considers that great benefit is to be derived from its use. It should be given in small doses (gr. ij.—iij.) twice or thrice daily, with Sarsaparilla or Taraxacum.

2276. *In Gonorrhœal Rheumatism*, the Iodide may be given with advantage. Mr. Lawrence§ states that he has seen great benefit from its use, in doses of gr. iv.—v. thrice daily, dissolved in Decoct. Sarzæ. *In Mercurial and Syphilitic Rheumatism*, it also proves highly serviceable.

2277. *In Face-ache*, partaking more of a rheumatic than a neuralgic character, Dr. Watson‖ found the Iodide, in doses of gr. v.—vj., work a speedy and permanent cure. I have found it very effectual in numerous cases.

2278. *In Sciatica and Lumbago*, when of a sub-acute or chronic character, and the patient has to follow his out-door avocations, Dr. Graves¶ strongly advises the Iodide, in doses of ʒj. daily, dissolved in Decoct. Sarzæ. In his own person, and in many other cases, he found it most efficacious.

2279. *In Hemiplegia*, it occasionally proves effectual. M. Briquet relates a case of two years' standing, in which there was complete loss of feeling over the whole of one side, and which yielded in two months to the Iodide, in doses of gr. x.—xviij. daily. In an instance of that form of *Paralysis* named *Paralysie Musculaire Atrophique*, the Iodide was successfully prescribed by Mr. F. Taylor.** It was given in doses of gr. v. three times a day, and muscular power began to return soon after it was commenced, other treatment having previously failed.

* Lancet, Dec. 10, 1842.
† Med. Times, Dec. 2, 1848.
‡ Essay on Gout, p. 310.
§ Med. Gaz., Jan. 5, 1839.
‖ Lectures, vol. i. p. 717.
¶ Dublin Journ., vol. xviii. p. 245; and Clin. Lect., vol. i. p. 496.
** Med. Times and Gaz., July 11, 1863.

2280. *In Chronic Inflammation and Enlargement of the Liver*, the Iodide, given in combination with Taraxacum, exercises a beneficial influence. Dr. Copland* observes that it is chiefly when enlargement, obstruction, or torpor of the liver occurs after periodic fevers, or in the scrofulous diathesis, that he has found the Iodide of Potassium, employed externally or internally, or both, and in conjunction with other deobstruents, as Liq. Potassæ, or alternated with purgatives, the most serviceable. *In Dropsy connected with disease of the Liver*, he regards it as a most valuable deobstruent and diuretic, and more to be depended upon than any other medicine. *In that form of Dropsy which occurs after Scarlet Fever*, Dr. Graves† also states that he can speak with the greatest confidence of the Iodide; and that he has employed it with signal benefit in *Hypertrophy of the Liver*. Dr. Mackenzie‡ found the Iodide, internally administered, very effectual in curing *Muscæ Volitantes depending upon hepatic derangement*. *In Tabes Mesenterica*, the internal use of the Iodide, in small and repeated doses, has a marked influence in reducing the tumid state of the abdomen, in improving the appetite and the state of the stools, and in establishing the general health.

2281. *In Chronic Pericarditis*, the Iodide, in doses of gr. iij.—v. thrice daily, has sometimes been administered advantageously; appearing to favour the absorption of effused fluid. (Dr. Joy.§) *In Hypertrophy of the Heart*, also, the long-continued use of small doses of the Iodide appears, in some cases, to exercise a beneficial influence. It requires to be persevered in for a considerable length of time. *In Aneurism of the Aorta*, M. Bouillaud found the Iodide produce the best effects in diminishing the size of the tumour. He gave gr. xv. and subsequently gr. xxx. daily for two months. In two cases in which he employed it, the results were most satisfactory.

2282. *In Pneumonia*, when the fever is removed, but the lung remains partially hepatized, or much engorged, Dr. Copland‖ has found small doses of the Iodide with Liq. Potassæ, in a weak decoction of Senega or Sarsaparilla, of great service; frequent recourse being had, at the same time, to blisters or to rubefacient embrocations to the chest. A similar treatment is very efficacious in *Chronic Pneumonia*. In *Chronic Pleurisy*, the internal administration of the Iodide is useful in inducing absorption of the effused fluid. (Sect. 1628.) The side at the same time may be painted with Tinct. Iodi, or a solution of Iodine.

* Dict. Pract. Med., vol. ii. pp. 746, 758.

† Clin. Lect., vol. i. pp. 352, 452, &c.

‡ Edin. Med. Surg. Journ., July 1, 1845.

§ Lib. of Med., vol. iii. p. 325.

‖ Dict. Pract. Med., vol. ii. p. 776.

2283. *In Chronic Bronchitis*, Dr. C. B. Williams* observes that the Iodide of Potassium has been found useful; in some instances, seeming to restrain low degrees of inflammation affecting the fibrous portions of the air-tubes; and probably, in some degree, retarding the process of induration, to which they tend. Dose, gr. ij.—iij. thrice daily. *In Emphysema of the Lungs*, he found considerable relief, with marked improvement of the physical signs, follow the use of small doses of the Iodide, in conjunction with Liq. Potassæ, Squills, &c. With regard to its use in *Phthisis*, Dr. Cotton† draws the following conclusions:—1. Iodide of Potassium, given in moderate doses to consumptive patients, occasionally produces dyspeptic symptoms, but more commonly is unattended by any marked result, either in one direction or the other. 2. Under its use the weight is seldom increased, but either remains stationary or is diminished, the latter effect being of the most frequent occurrence. In that form of *Phthisis which is associated with Syphilitic taint*, it is a valuable remedy, and may be given in conjunction with Iron and Cod Liver Oil.

2284. *In Asthma*, it has been largely prescribed by Dr. Williams and others. Dr. Hyde Salter‡ states that it entirely fails in a great many cases, while those in which its success is complete are comparatively few. Sometimes, however, most striking results attend its use. The benefit derived does not seem to be due to its influence on chronic bronchitis, or on a gouty or rheumatic-gouty condition. It must be continued some time before it begins to manifest its effect.

2285. *In Saturnine Affections*, M. Melsens§ advises the use of very small and cautiously-increased doses of the Iodide of Potash, in cases of chronic poisoning by lead. The theory of its action is, that it renders soluble metallic substances, which might otherwise remain in the system, by associating them with another substance that is readily eliminated by the organs of secretion. This theory, if correct, shows the necessity of caution in the use of the remedy; which, if given in large doses, would favour the absorption into the system of a powerful poison. *In Mercurial Palsy and Tremors*, the Iodide, acting on these principles, was found beneficial.

2286. *Diseases of the Skin. In Scabies*, the external application of a solution of the Iodide (ʒj. ad Aq. fʒviij.—fʒxvj.) has been advised by Dr. Ogier Ward,‖ and others. Dr. Albin Gras found that the Acarus lives but four or six minutes in a concentrated solution of Potas. Iod.; whilst it lives sixteen hours in the vapour of Sulphur, two hours in Olive Oil, one hour in Ace-

* Lib. of Med., vol. iii. pp. 81 and 159.

† Med. Times and Gaz., Dec. 24, 1859.

‡ Lancet, Jan. 23, 1864.

§ Bull. de l'Acad. Roy. de Méd., 1849.

‖ Lancet, April 4, 1846.

tate of Lead, one hour in powdered Sulphur, twenty minutes in Vinegar and Spirits of Wine, and twelve minutes in a solution of the Sulphuret of Potash. Dr. Schedel,* who quotes this statement, advises its use (ʒss. to ʒj. of Lard). Cazenave recommends the following lotion:—℞ Potas. Iod., Sulphuris Iod. āā ʒj., Aq. Dest. fʒiv., M. ft. lotio.

2287. *In Lepra Tuberculosa, Elephantiasis, Lepra*, when the disease is limited in extent, to the face or ears for example, Dr. Schedel states that an ointment of Iodide of Potassium (℈j. ad Ung. ʒj.) is often very beneficial, the vapour douche being used at the same time. *In Pemphigus and in Ecthyma Cachecticum*, the internal use of this salt is recommended by Mr. E. Wilson.†

2288. *In Sycosis or Mentagra*, local applications are of comparatively little service, unless combined with the internal use of alteratives; of these, the Iodide, in doses of gr. iv., in Decoct. Sarzæ (fl. oz. ij.), is one of the most effectual. *In Simple Ulcers of the Legs*, Drs. Tige and Trastour‡ advocate the internal use of the Iodide in doses of gr. xv.—xx. in water (fʒss.) thrice daily before meals. It is to be used in addition to local applications, the operation of which it seems to facilitate.

2289. *In Engorgement of the Breasts in Puerperal Women*, Dr. Billi,§ of Milan, prescribed it with success. He gave from gr. vij.—gr. ix., in divided doses daily.

POTENTILLA. See TORMENTILLA OFFICINALIS.

2290. PROPYLAMINE. A peculiar volatile alkali obtainable from several sources, but prepared for medicinal use from herring brine. It is a colourless, transparent liquid, with a strong ammoniacal odour, soluble in water, and presents even in a weak solution a strong alkaline reaction. It combines with acids, and forms crystallizable salts. *Chem. Form.* C_6H_9N.

Med. Prop. and Action. This substance has been introduced by Dr. Awenarius,‖ of St. Petersburg, as a remedy of great value in the treatment of *Rheumatism*. He states that in the space of two years, 1854—1856, he treated successfully with it more than 250 patients suffering from *Acute and Chronic Rheumatism*. According to his experience, the fever and pain, in every case, disappeared the day after the administration of this remedy. He administered it in the following manner:—Propylamine gutt. xx.; Distilled Water fʒvj.: Oleo-Saccharum of Peppermint ʒij., M. Of this a teaspoonful was given every hour.

2291. PRUNUM. Prune. The dried Drupe of the Prunus Domestica, the Plum Tree. *Nat. Ord.* Rosaceæ. *Linn. Syst.* Icosandria Monogynia. *Hab.* Syria and different parts of Europe.

* Lib. of Med., vol. i. p. 386.
† Diseases of the Skin, pp. 192, 247.
‡ Ranking's Abstract, xxx. p. 236.
§ Med. Times and Gaz., Oct. 3, 1863.
‖ Edin. Med. Journ., June 1860, p. 1132.

Med. Prop. and Action. Mild laxative. Principally used in domestic medicine. Added to Senna, Prunes increase its purgative action, and render it more palatable.

Offic. Prep. Confectio Sennæ. (See SENNA.)

Dose of Prunes, oz. ij., and upwards.

PTEROCARPUS MARSUPIUM et P. ERINACEUS. See KINO.

2292. PTEROCARPUS SANTALINUS. Sandal Wood Tree. Is only officinal for the fine colouring matter obtained from the wood. It has no medicinal properties.

Offic. Prep. Tinctura Lavandulæ Composita. (See LAVANDULA VERA.)

2293. PUNICA GRANATUM. Pomegranate. *Nat. Ord.* Granateæ. *Linn. Syst.* Icosandria Monogynia. *Hab.* Southern Europe, the East and West Indies, &c. Chiefly imported dried from Germany.

Med. Prop. and Action. The flowers, named *Balaustion* by the ancients, are astringent, and are still used as such by the natives of India. The rind of the fruit is also astringent, and is best exhibited in the form of decoction (oz. ij., Water Oiss., boil to Oj.), in doses of fl. oz. ss.—fl. oz. j. The bark of the root (*offic.*) is, however, the part chiefly valued, from its powerful anthelmintic properties. (See *infra.*) The decoction is useful as an astringent application in relaxed conditions of the mucous membrane of the throat, intestines, &c. All the above parts of the plant are rich in Tannin.

Offic. Prep. Decoctum Granati Radicis (Sliced Pomegranate Root oz. ij.; Distilled Water Oij. Boil down to Oj., and strain). Dose, fl. oz. j.—fl. oz. iij., or more.

2294. *Therapeutic Uses. Against Tænia or Tape-Worm* the bark of the root is almost a specific, if it be employed fresh and in a proper manner. Its efficacy was known long before the age of Celsus,* but it fell into disuse. Its re-introduction in 1805 is due to Dr. Buchanan,† of Calcutta; and its efficacy is now generally admitted. Of the decoction (*ut supra*), fl. oz. ij. should be administered fasting, and repeated every half-hour, until four doses have been taken. It should then be followed by a dose of Castor Oil. Dr. Elliotson‡ prefers the root-bark in powder, in doses of ℈j.—℈ij. every two hours, until six doses have been taken; the next day, twelve similar doses are advised, and then an aperient. The decoction, however, is preferable. The shortest period in which the worm has been expelled under the use of this remedy, is three hours; the longest, twenty-five; and the average, about twelve hours.

2295. *In Chronic Diarrhœa and Dysentery*, when unattended by inflammatory action, the decoction of the rind of the fruit

* De Medicinâ, lib. iv. cap. xvii.
† Edin. Med. and Surg. Journ., vol. iii. p. 22.
‡ Med. Chir. Trans., vol. xi. p. 301.

(*ut supra*) occasionally proves highly serviceable. I have seen it arrest the discharge in some instances, when other astringents had previously failed. It is particularly useful in *Diarrhœa consequent on debilitating diseases.*

2296. *In Cancer of the Uterus*, Dr. J. Clarke advises the following injection, when the discharge is so profuse as to cause great debility:—℞ Decoct. Cort. Granati Oj., Alum. ʒss., M. *In Leucorrhœa*, the same injection, or with a smaller proportion of Alum (gr. lx.), may be used with advantage.

2297. *In Relaxed Sore Throat*, the decoction, with the addition of Alum (gr. lx. ad Decoct. Oj.), proves very useful as a gargle.

2298. Pyrethrum. The root of Anacyclus (Anthemis, *Linn.*) Pyrethrum. Pellitory of Spain. *Nat. Ord.* Compositæ. *Linn. Syst.* Syngenesia Superflua. *Source*, Barbary, Spain, the Levant.

Med. Prop. and Action. Irritant and sialogogue. It is extremely acrid, and when rubbed on the skin, it causes much irritation, and even inflammation. When chewed, the taste is at first insipid, but after a few seconds it causes a hot, pungent, pricking sensation in the tongue and lips, with a copious secretion of saliva. Its activity appears to depend on an acrid oil, and a compound resin, *Pyrethrin.* It is rarely employed internally; its chief use is that of a masticatory.

2299. *Therapeutic Uses. In Toothache*, a piece of Pyrethrum chewed slowly in the mouth excites a copious flow of saliva, and thus, as a derivative, occasionally affords relief.

2300. *In Relaxation of the Uvula or Tonsils*, the following gargle has been found highly useful:—Boil ʒss. of the root in Oj. of water to Oss., and to the strained liquor add fʒij. of Liq. Ammoniæ. (A. T. Thompson.*)

2301. *In Paralysis of the Tongue and Muscles of the Throat*, Pyrethrum chewed has been found useful as a direct stimulant and derivative. It has been used with benefit in *Nervous Aphonia.* (Copland.)

2302. *In Spontaneous Salivation*, Dr. O'Shaughnessy† found it effect a cure in two cases which had resisted every other treatment for three months.

2303. *In the lethargic stages of Typhus Fever, and in Paralytic Affections*, it is given internally by the Mahomedans, as a cordial and stimulant. (Ainslie.‡)

2304. Quassia. Quassiæ Lignum. The Wood of Picræna (Quassia) Excelsa. *Nat. Ord.* Simarubaceæ. *Linn. Syst.* Polygamia Monœcia. *Source*, Jamaica and the West Indies. Surinam Quassia is the wood of Quassia Amara.

* Dispensatory.
† Beng. Dispensatory, p. 414.
‡ Mat. Med. of Hindostan, p. 34.

Med. Prop. and Action. Bitter tonic and stomachic. It is best given in infusion, or in tincture (gr. dc., Proof Spirit Oij.), in doses of ℥xxx.—fl. drm. j. It contains a bitter neutral principle, *Quassine.* It has many advantages over most other vegetable tonics; it does not increase the animal heat, it produces no sensible arterial excitement, it causes no constipation, and may be administered in infusion, in combination with the salts of Iron, and of all other metals, with the exception of the Nitrate of Silver and Acetate of Lead. I have generally observed an increased flow of urine, during its exhibition. In large doses it is stated to prove narcotic, but I have never witnessed this effect.

Offic. Prep. 1. Extractum Quassiæ (prepared by macerating powdered Quassia in Distilled Water, percolation, and evaporation). Dose, gr. ij.—gr. v.
2. Infusum Quassiæ (Quassia Chips grs. lx.; Cold Distilled Water fl. oz. x. Infuse for half an hour, and strain). Dose, fl. oz. j.—fl. oz. ij.

Dose of Quassia in powder, gr. x.—gr. xx.

2305. *Therapeutic Uses. In Intermittent Fevers,* Quassia has been highly extolled. It was first introduced into notice in 1756, as a successful remedy in the treatment of the severe fevers of Surinam; and in the West Indies, even at a very recent period, it was considered to possess considerable febrifuge power; thus Dr. Thomas* states that, during his residence in the West Indies, he met with many cases of Intermittent Fever, which, after resisting the powers of Cinchona, gave way to the use of Quassia—"indeed," he adds, "so sovereign a remedy was this found in Intermittents, and so easy was it to be obtained, that it was pretty generally substituted by all practitioners." He advises it in the form of infusion (℥ij. ad Aq. Oss.).

2306. *In low Remittent and Nervous Fevers,* it was a favourite remedy of Dr. Lettsom.† He states that he frequently found it succeed, when Cinchona failed; he considered that it was particularly indicated when there was congestion of the hepatic system, and the debility at the same time rendered copious evacuations inadvisable. In *Typhus Fever,* it has also been found useful, when given in combination with Nitric Acid.

2307. *In Debility succeeding Fevers, &c.,* Quassia proves an excellent tonic. Dr. Lettsom observes that in *hysterical Atony,* to which the female sex is so prone, Quassia affords more vigour and relief to the system than any other tonic, especially when united with Zinci Sulph., and still more with the aid of some absorbent.

2308. *In Dyspepsia,* Quassia has been found very serviceable, particularly when combined with an aromatic, as T. Zingib.; or with a sedative, as T. Hyoscyami. It has been found particularly adapted to that form of dyspepsia which arises from hard drinking. *In the advanced stage of Diarrhœa,* it is strongly recommended by Dr. Lettsom.‡

* Practice of Physic, p. 14.
† On the Treatment and Cure of Fevers, Lond. 8vo, 1772.
‡ Mem. of Med. Soc. of Lond., vol. i.

2309. *Against the Round Worms or Lumbrici*, occurring in children, I have found the infusion taken for three or four days in succession, and followed by a brisk purge, very effective. In the treatment of *Thread Worms*, Dr. Watson* states that he has found the infusion, in the form of enema, very effectual.

2310. QUERCUS CORTEX. The dried Bark of the small branches and young stems of Quercus Pedunculata. The Common Oak. *Nat. Ord.* Cupuliferæ. *Linn. Syst.* Monœcia Polyandria. *Source*, England.

Med. Prop. and Action. Astringent. It is best given in decoction. It has been regarded as anti-periodic, and its astringency depends upon the presence of Tannic and Gallic Acids. It is principally used as an external application, injection, &c.

Offic. Prep. Decoctum Quercûs (Bruised Oak Bark oz. iss.; Distilled Water Oiss. Boil for ten minutes, and strain). Dose, fl. oz. j.—fl. oz. ij.

Dose of powdered Oak Bark, gr. xxx.—gr. lx.

2311. *Therapeutic Uses. In Chronic Diarrhœa*, the decoction (*ut supra*) proves occasionally useful, and it has been advised in the advanced stages of *Dysentery*. Acorns, roasted and powdered, have also been employed.

2312. *In Atonic Menorrhagia and Leucorrhœa*, the decoction, with or without Alum (gr. lx. ad Decoct. Oj.), is a safe and efficacious injection. Drs. Ballard and Garrod† state that they know of few remedies more useful in Leucorrhœa.

2313. *In Cancer of the Uterus*, Dr. Ashwell‡ advises the following injection:—℞ Infus. Quercûs f℥iv., Pulv. Gallæ ʒss., T. Catechu f℥ij., M. He found it a useful palliative.

2314. *In Prolapsus Uteri vel Recti, and in Piles*, the decoction of Oak Bark forms a useful astringent local application.

2315. *In Relaxation of the Uvula, Tonsils, &c.*, the decoction may be advantageously used as a gargle.

2316. *In Intermittents*, Cullen§ advises its use. He states that, given by itself, or conjoined with Chamomile flowers, he has found it prevent the return of the paroxysm. Dr. Eberle‖ employed baths of the decoction in the intermittents of young children. It is a remedy of minor value.

2317. *In Malignant Coryza (Snuffles) of Children*, the internal use of the decoction of Oak Bark is advised by Underwood.

2318. *In Gangrene, and to indolent and ill-conditioned Ulcers*, poultices of the powdered Bark have been applied with advantage. Bigelow advises the decoction as an astringent wash.

* Lectures, vol. ii. p. 539.
† Mat. Med., p. 325.
‡ On Diseases Peculiar to Women, 8vo, 1845.
§ Mat. Med., vol. i. p. 45.
‖ Practice of Physic.

2319. QUINIA. Quinia, Quinine, Quina. $C_{40}H_{24}N_2O_4$, with six equivalents of Water when crystallized (Garrod). An alkaloid obtained from Yellow Cinchona Bark (Cinchona flava), from Fibrous Carthagena Bark (Cinchona lancifolia, *Mutis*), and other species of Cinchona. See CINCHONA.

QUINIÆ SULPHAS. Sulphate of Quinia. Quinæ Disulphas seu Sulphas. The Disulphate or Sulphate of Quina, commonly called Sulphate of Quinine. $C_{40}H_{24}N_2O_4$, $HO, SO_3 + 7\ HO$.

Med. Prop. and Action. The Sulphate of Quinia is the salt prepared from the Cinchona bark which is principally employed in medicine, and may be taken as a type of the other preparations of the alkaloids obtained from the same source. It is a powerful anti-periodic, febrifuge, and tonic, and is applicable to all those diseases in which Cinchona has, for so long a period, been celebrated. It possesses all the medicinal properties of Cinchona except its astringency. From the small space it occupies, it is preferable, in the majority of cases, to the crude bark, which, from the quantity required to be taken, is apt to overload the stomach, occasion dyspepsia, and other derangements of the alimentary canal. In small doses it does not produce any well-marked sensible effect on the system, with the exception of a small amount of arterial excitement: occasionally it causes a great flow of animal spirits, and in one or two rare cases I have found gr. v.—vj., taken immediately before going to bed, induce sleeplessness throughout the night. In large or long-continued doses, it causes headache, deafness, noises in the ears, flashings of light across the eyes, vertigo, nausea, delirium, or coma. The supervention of any of these symptoms, termed Cinchonism, indicates that the full physiological effects of the drug have been produced, and that no further benefit can be obtained by persevering in its administration. Drs. Melier and Majendie* instituted a series of experiments upon animals with large doses of Quinine. Most of the animals died, and their lungs were found congested, and infiltrated with blood, which was generally found fluid; in those in which it had coagulated, the clot was softened, separating easily from the serum, which remained of a reddish hue, and thick, holding the colouring matter in solution. In some cases the brain and gastro-enteric mucous membranes were injected with blood. The action of the Quinine was much more energetic when given after a long abstinence from food, and when combined with Sulphuric Acid, than when given immediately after a meal, or in a semi-soluble state. It appears evident from these experiments, that Quinine is absorbed into the blood, the constitution of which it changes, by depriving it of its coagulability, acting upon it, when in a sufficiently large dose, in the same manner as any other poisonous agent. These results correspond closely with those obtained by Dr. Giaccomini,† whose experiments on this subject were extensive and interesting. Dr. Ranke‡ found in some experiments, made by administering Quinine to three healthy individuals, that in each case there was a diminution in the amount of Uric Acid in the urine, and he suggests that this may afford an explanation of the *modus operandi* of Quinine in Ague, where there is, according to all observers, a considerable increase of uric acid in the urine. Mr. R. Walker§ has published some interesting remarks to show that Quinine does not act as a tonic, as is generally supposed, but as a sedative to the efferent nerves of the sympathetic.

Offic. Prep. of Quiniæ Sulphas:—Tinctura Quiniæ Composita (Sulphate of Quinia grs. clx.; Tincture of Orange Peel Oj. Digest for seven days, and strain). Dose, fl. drm. j.—fl. drs. ij. 1 fl. drm. contains 1 gr. of Quinine.

* Mém. de l'Acad. Roy. de Méd., t. x. 1843.

† Ann. Univ. di Med., March 1841.

‡ Med. Times and Gaz., May 30, 1857.

§ Ibid., Feb. 21, 1863.

Dose of Sulphate of Quinia: as a tonic, gr. j.—gr. iij. ; as an anti-periodic, gr. iij.—gr. x., or even gr. xx. It may be administered in the form of solution with an acid, or simply suspended in water, or in pill, syrup, or confection, or dissolved in Glycerine.

Other Preparations of Quinine. QUINOIDINE is a supposed uncrystallizable form of Quinia contained in the mother liquors from which Sulphate of Quinia has been crystallized. According to Van Heijningen, it may be resolved into ordinary Quinia, Cinchonia, Quinidina, and a resinous substance.* From it Liebig obtained his Amorphous Quinine, which he considers bears the same relation to crystallizable Quinia that barley-sugar does to sugar-candy. Dr. Garrod thinks Amorphous Quinine is closely allied to *Quinicine*, a substance isomeric with Quinine, into which Pasteur found that the latter is changed when carefully heated in the form of a salt, as the tartrate.† The dose of Amorphous Quinine is gr. j.—gr. x.

QUINIÆ ARSENIAS. Arseniate of Quinia. A salt supposed to combine the anti-periodic properties of Arsenic and Quinine. Garrod considers its special value somewhat doubtful. Dose, gr. ¾—gr. iss. in twenty-four hours, in divided doses.

QUINIÆ ET FERRI CITRAS (*offic.*). See FERRI ET QUINIÆ CITRAS.

QUINIÆ VALERIANAS. Valerianate of Quinine (Ph. D.). Anti-periodic and anti-spasmodic. Especially useful in intermittent neuralgia. Said to produce less disorder of the nervous system than the Sulphate. Dose, gr. j.—gr. iv., in pill or mucilaginous mixture. It is readily decomposed by acids.

SYRUP OF DIKINATE OF QUINIA (Donovan). 1 drm. contains 2 grs. of Dikinate of Quinia, which is equal to 8¾ oz. of Decoction of Bark, or 96 grs. of Powdered Bark (Squire‡). Dose, ℥xxx.—fl. drm. j.

Tartrate, Phosphate, Citrate, Tannate, Acetate, Ferrocyanate, Nitrate, and Hydrochlorate of Quinine have also been proposed at various times as medicinal agents, but they do not appear to possess much advantage over the Sulphate.

2320. *Remarks on the Administration of Sulphate of Quinia.* 1. In all cases previous to the administration of Quinine, it is advisable to give a purgative or emetic, or both, so as thoroughly to remove all crude matters or biliary accumulations from the alimentary canal.

2. The fluid form is the best, and its activity and certainty of operation are greatly increased by the addition of a few drops of Acid. Sulph. Dil. (one drop to each grain). Mr. Squire, however, recommends that when a large dose (gr. x.) is to be taken, that it be merely suspended in water and not dissolved, as the bitterness is not then so intense.

3. Its action is rendered more certain and speedy by being given on an empty stomach.

4. When the bitter taste is objectionable, as in the case of young children, Amorphous Quinine, which is insoluble in saliva, but readily soluble in gastric juice, may be advantageously substituted.

5. To disguise its taste, it may be given in Infus. Rosæ Acid., which, although it produces a turbid and unsightly mixture, does not interfere with its operation. The same remark applies to strong coffee, which is a good vehicle for its exhibition. Another good vehicle for Quinine is the Infusum Rosæ cum Acido Nitrico of Mr. Squire (Red Rose petals broken small, oz. ij. ; Dilute Nitric Acid fl. oz. ss. ; Cold Distilled Water fl. oz. xx. Infuse two hours, frequently stirring; strain, and add powdered Sugar oz. j.). This, with Quinine, makes a bright and attractive mixture.§ Tannin effectually disguises the taste (gr. ij., Quinine gr. x.).

6. When, from irritability of the stomach, it cannot be given by mouth, it may advantageously be administered in the form of enema, in two or three ounces of any bland fluid. Or it may be effectually applied endermically or hypodermically.

* Pereira, vol. ii. pt. 2, p. 119.

† Garrod, Ess. Mat. Med. and Therap., pp. 222, 223.

‡ Companion to Pharmacopœia, p. 154.

§ Comp. to Pharm., p. 159.

7. Combination with other remedies, particularly with Opium, Arsenic, or the Sulphate of Iron, appears greatly to increase its efficacy.
8. If, under its continued use, fulness of the head, or a buzzing noise in the ears, be experienced, the medicine should be discontinued.
9. When Quinine fails, Cinchona will sometimes prove effectual; or it may be advantageously replaced by Arsenic, Sulphate of Iron, or some other antiperiodic.
10. It is advisable to continue its administration some time after the disease appears to be cured.

Contra-indications. 1, Plethora, with a determination of blood to the head; 2, cerebral affections generally; 3, inflammatory states of the intestinal canal.

2321. *Therapeutic Uses. Fevers.—In Intermittent Fevers*, Quinine may be regarded almost as a specific in uncomplicated cases. If given in doses of gr. ij.—iv. or more, every four or five hours during the intermissions of the fever, it proves almost uniformly successful. In order, however, to obtain these results, it is necessary to ascertain, by careful examination, that no hepatic or visceral disease exists; such complications rendering the remedy not only inert, but injurious. It is, therefore, advisable to commence the treatment with a purgative or emetic, or with both. Mr. Eyre,* in his valuable report on the Goomsur Fever, in 1847, states that he often found Quinine fail, and that he has never seen it otherwise than injurious, when there exists a disordered state of the primæ viæ; an observation which accords with the experience of most Indian medical officers. In other instances, he observes, in which the remedy failed, bilious accumulation in the bowels, or congested liver, was found to be present, on the removal of which, the fever often subsided spontaneously; or a few moderate doses of Quinine proved sufficient to effect a cure. If these, however, are allowed to remain unheeded— if complications of important viscera, particularly of the brain, exist—if the pulse continue frequent, and the tongue be foul and loaded, whatever may be the state of the skin, no good effects can generally be expected from the administration of Quinine: if it does not prove inert, it will be injurious. These remarks, as applying to one of the most obstinate of all Indian fevers, merit especial notice. Other modes of administering Quinine in intermittents have been proposed, the advocates of each mode declaring it to be "the most effectual." They are as follows:—

a. It should be given in large doses, not only during the intermissions, but also during the hot stages of Fever. This plan, originating in America, has found its advocates in India. Amongst others, Drs. Hare, Ford,† and Macrae,‡ have recorded their opinions of its efficacy. Dr. Macrae, in an able paper, supports his own by the opinions of others, drawn from various

* Medical Reports, Madras, 1850, p. 129.

† Indian Register of Med. Sciences, Aug. 1848.

‡ Ibid., June 1848.

sources. Dr. Upshur, of Virginia, administered gr. x. every hour, until the patient complained of noises in the ears, &c., and continued its use, irrespective of the existence of pyrexia. Of 105 cases thus treated, not one died, and in only three were there any unpleasant symptoms. Dr. Bell, physician to H.M. Mission in Persia, administered Quinine at stated periods, irrespective of the presence or absence of fever, and he affirms that he found the practice highly successful. M. Mailot, physician to the French army in Algiers, employed Quinine in large doses (in one case 148 grains in twenty-four hours), in the hot as well as the cold stage, with decided effect. Dr. Ford, out of 2,294 cases in which this treatment was followed, only lost ten, or about ½ per cent.: but the value of this return as evidence of this mode of giving Quinine, is greatly weakened by the fact that he gave Mercury at the same time, so as to produce soreness of the mouth.

b. It should be given in one large dose, immediately after the paroxysm of Fever. Dr. Elliotson advised this method, and it has very commonly been adopted in some parts of America. Dr. Holmes* states that, in the severe intermittents which occur in the Southern States of America, a large dose of Quinine, given immediately after the fever has subsided, effectually checks any further paroxysms. The usual dose is from xv. to xx. grs. for an intermittent, and from xxx. to l. grs. for a congestive fever. In one case he gave lxxx. grs. for a dose! He never administered divided doses of Quinine; one large dose, in his opinion, being more efficacious than any number of small ones. Dr. Macrae† states, that of seventy-four cases thus treated (gr. xv.—xxv. for a dose), a single dose was required in fifty-five, a second in thirteen, and a third or more in six cases. Dr. Mackinnon‡ also bears testimony to the value of this treatment, considering that the most effective and most economical mode of administering Quinine is to give it in a single large dose (ʒss.) at or towards the termination of the sweating stage. A similar mode of administration is likewise praised by Dr. Mactier§ and Dr. Murchison.‖ Dr. Short¶ states that one dose of grs. xxv. in Europeans, and grs. xx. in natives, given immediately after the sweating stage, has been found quite adequate to arrest the fever.

c. It should be given in one large dose immediately before the expected paroxysm. This mode was advocated by Cullen,** and it numbers many respectable advocates. Dr. Harris,†† of

* Amer. Journ. of Med. Sciences, 1847.
† Op. cit.
‡ Indian Ann. of Med., Oct. 1853.
§ Ibid.
‖ Edin. Med. Surg. Journ., Jan. 1855.
¶ Indian Annals, Jan. 1858.
** Mat. Med., vol. ii. p. 97.
†† Southern Journ. of Med. and Pharmacy, 1842.

Georgia, strongly advises it, in a dose of gr. xv., an hour before the expected paroxysm. Although doubtful of the efficacy of this method as a general rule, I may add, that in one or two instances, I have seen a single dose of gr. xij., given immediately the cold stage commenced, not only check the paroxysm, but effectually prevent even a single recurrence of it afterwards.

d. It may be effectually applied endermically. Although this proposition is denied by Martin-Solon,* it appears certain, from the experiments of Ahrenson,† and others, that the salt, when thus applied, is absorbed into the system, and retains its anti-periodic power. Dr. Guastamacchia‡ found it act as efficaciously as if given internally. He dissolved gr. viij. in f℥ss. of Spirit, and rubbed first one half, and after the interval of a quarter of an hour, the second half, along the spine. When this was done at the commencement of the cold fit, it very often prevented even a single recurrence. Dr. Daunt,§ also, bears testimony to this method in the fevers of South America. Dr. Chasseaud‖ found that one or two grains of Quinine in alcoholic solution, injected into the cellular tissue of the arm, are equally if not more efficient in arresting fever than large doses given internally. It produces, thus used, no unpleasant effects. Mr. W. J. Moore,¶ of the Bombay Medical Service, also states that he has treated thirty cases of intermittent fever, and several cases of remittent, with invariable success, by the subcutaneous injection of Quinine. He uses from fl. drm. ss.—fl. drm. j. of the following solution:—℞ Quiniæ Sulph. gr. xxx., Acid. Sulph. Dil. gutt. viij.—x., Aquæ fl. oz. ss. The time at which the injection should be made in intermittents is before the expected cold fit. He believes that four or five grains thus used are equal in their effects to five or six times that amount taken into the stomach.

e. It should be given in one ten-grain dose, on a day free from fever. This method was employed by Dr. Pfeufer,** of Heidelberg, in thirty-four cases, and a cure was effected in every case, in a period varying from four to eight days. The dose, he states, is well borne, producing none of the inconveniences which result from the long-continued use of small doses.

f. It should be given at long intervals. Prof. Graves,†† whose proposition this is, objects to the continued use of Quinine, as thus the constitution becomes accustomed to its influence, when the ague fit is absent, and that influence is thus weakened. He therefore proposes to administer Quinine for four successive days,

* Bull. de Thérap., Dec. 1844.
† Essay on the Endermic Method.
‡ Ed. Med. Surg. Journ., No. lix. p. 473.
§ Clin. Notes, Med. Times, vol. xvii. p. 476.
‖ Med. Times and Gaz., Aug. 2, 1862.
¶ Lancet, Aug. 1, 1863.
** Brit. For. Med. Rev., April 1850.
†† Dub. Quart. Journ., 1846; and Clin. Lect., vol. i. p. 379.

and to intermit it for the following six, thus embracing the interval comprehended in three fits. By this means, he says, the system is kept sufficiently under the curative influence of Quinine, without being rendered too familiar with it, the six-day interval preventing the constitution becoming saturated by the medicine.

Concluding Observations. From the above statements, it appears that Quinine, in large doses, is an effectual remedy for intermittents; but we require evidence to show that, thus exhibited, it effects a more speedy or uniform cure than when given in small doses during the intermissions of fever. If it fail in small doses, it may be employed in large doses in any of the methods above proposed; but the latter practice is not free from danger; thus, in a discussion at the Medico-Chirurgical Society of London, May 22, 1843, Dr. Sewell, of Washington, stated that, although he had found that large doses, when given in very bad fevers, did not seem to injure the brain, yet that, in fevers of a milder description, they caused deafness, and, in some instances, stertorous breathing, and a dilated pupil. Mr. Stanley added, that he had known cases of Rheumatism, in the treatment of which gr. x. or xij. doses of Quinine had proved fatal. M. Matteucci* mentions the case of a patient who had taken large quantities of Quinine for an Ague, who was attacked with paralysis of the lower extremities. A plan of treatment which in my hands has proved the most effectual, is to administer a brisk purgative or emetic, or both, and then to give Quinine in very small doses (gr. j. to iss.) at very short intervals, every one or two hours, during the period of apyrexia, thus keeping the constitution continuously under the influence of the medicine. Thus given, it appeared to produce a more speedy effect on the system, and to prevent the return of the paroxysm more certainly and rapidly than if given in much larger doses, at longer intervals.

The following facts, relating to relapses after Quinine has been discontinued, merit attention. Dr. Clark,† of Dominica, states that if no more of the remedy be taken in the West Indian Ague than is barely sufficient to stop a fit, and then the medicine be suspended, a relapse may take place on the eighth day, in the case of a quotidian; on the fourteenth or fifteenth, in the case of a tertian, or double tertian; and on the twenty-first or twenty-second, in the case of a quartan, thus making in each type seven periodical revolutions from the time the fit was suppressed, to the next attack; and the fit was found to return on the proper day, at the same hour at which it would have returned, if its course had not been interrupted by the administration of the

* L'Expérience, April 1843.

† Quoted by Dr. Watson, Lectures, vol. i. p. 767.

remedy. Here we have, adds Dr. Watson, a still earlier glimpse of the abiding periodic tendency, noticed by Dr. Gregory and by Dr. Graves, during the long protracted absence of actual paroxysm. It points out clearly the propriety of continuing the remedy for some time after the disease appears to have vanished.

2322. The *powers of Quinine as a prophylactic of Fever* have been variously estimated. It is always extremely difficult to prove the prophylactic power of any agent, as it is impossible to say whether an individual who has recourse to it, and escapes the invasion of the disease against which it is supposed to operate, would not equally have escaped, if he had not employed these means. With respect to Quinine as a prophylactic agent against fever, I have on several occasions observed, that of a number of persons exposed to the same malarious influence, those who made it a daily practice to take two or three grains of Quinine, have escaped fever; whilst those who either neglected, or laughed at the reputed preventive, were attacked by it; at the same time it must be admitted, that in both classes some exceptions presented themselves. How far the mind may exercise an influence in these cases, it is impossible to determine; but it has always appeared to me, that Quinine does exercise a considerable influence in preventing the invasion of fever. Dr. Copland* evidently inclines to the same opinion, and recommends the following pills:—℞ Camphor. ℈j., Quiniæ Sulph. ℥ss., Pil. Galb. Co. ℥j., Pulv. Capsici gr. xvj., Balsam. Canad. q. s. ft. pil. xxxvj., cap. ij.—iij. horâ somni. I have, however, generally contented myself with ordering two or three grains of Quinine to be taken in solution, either immediately before, or with a cup of hot coffee, the first thing in the morning.

2323. *In Remittent Fevers*, Quinine is a remedy of the highest value, but its exhibition requires more caution and discrimination than in simple Intermittents. The plan first propounded, in 1847, by Mr. Hare,† of the Bengal Medical Service, of administering Quinine in repeated scruple doses at all stages of the fever, even during the height of the exacerbations, has attracted much notice, and has had able advocates; but it has not met with favour with the profession generally. Dr. Morehead‡ considers that the tendency of the system is to favour superficial clinical observation. Sir Ranald Martin§ expresses himself as opposed to it, and Dr. Kenneth Mackinnon‖ considers that Quinine is best

* Dict Pract. Med., vol. i: p. 921.

† On Fever and Dysentery, Delhi, 8vo, 1847.

‡ Diseases in India, &c., 2nd Ed., p. 146.

§ Tropical Diseases, &c., Ed. 1861, p. 338.

‖ Diseases of Bengal, &c., p. 207.

given in small doses during the remissions only; diaphoretics, purgatives, and other depletory measures, being used during the paroxysm. My own experience coincides, on the whole, with that of the latter practitioner, though I believe that the remedy may be given at an earlier period and in larger doses than he prescribed. Where, observes Sir R. Martin,* with a state of general plethora, visceral congestions remain unsubdued or only partially removed, the secretions being scanty and depraved, with the pulse full and hard, and the skin dry, and hot, the time for the exhibition of Bark has not yet arrived. But when venous congestions have been overcome by previous depletory means, when the pulse has been reduced in force and frequency, when the secretions are in free action and the skin relaxed, we may be sure of establishing the anti-periodic influence of Quinine with the best effect, and without risk of producing injury. It then becomes a sovereign remedy, and must be given in full doses, so as speedily to establish its influence. The amount and frequency of the dose will depend on the nature of the fever: where the paroxysms are violent, or where the sufferer is in a malarious locality, the dose should be large and often repeated. It is better to exhibit the Quinine in five-grain doses often repeated, than to give scruple doses as recommended by some writers. Full details of Dr. Hare's treatment have recently been published by that gentleman,† and also by Dr. Ewart.‡

2324. *In Bilious, Remittent, or Yellow Fever*, the *abortive* treatment, as it has been termed, which consists of the administration of one large dose (grs. xxx.—xl.) of Quinine with Morphia or Opium at the outset of the disease, was introduced in 1837 by Dr. Thévenot, of Guadaloupe, and met with supporters in Dr. Blair, of Demerara, Dr. Harrison, of New Orleans, &c. Notwithstanding the lavish praises of these physicians, it failed in the hands of Drs. Van Buren, Fenner, and others. Dr. Stillé § sums up the evidence *pro* and *con* in the following words:—1. That Quinia is not a specific for Yellow Fever as it is for periodical fevers of every type. 2. That, in mild cases which would probably recover under good nursing and the expectant treatment, the medicine may sometimes hasten recovery. 3. That, on the whole, the results depending upon Quinia are no better, if indeed they are as good as those of the treatment of symptoms sanctioned by general experience. This is perhaps a little too low an estimate of the powers of the drug: some of the evidence in favour of its powers was very strong.

* Op. cit., p. 338.

† Medical Times and Gazette, Nov. 1864.

‡ Indian Annals of Med. Science, vol. vii. p. 267.

§ Therapeutics, 1860, vol. i. p. 517.

2325. *In Typhus Fever*, Cinchona was introduced in 1770 by Dr. Miller, and was subsequently recommended by Dr. J. Clark, &c. In 1851, Dr. Dundas, from a fancied analogy between Typhus and Intermittent Fever, proposed the treatment of the former by large doses of Quinine. Much difference of opinion has been expressed as to its powers. That it failed in the Typhus of the Crimean war, where it was tried largely, is undisputed; and Dr. Murchison,* who is unfavourable to its use, observes: "One thing is certain, that there is no proof that Quinine can arrest the course of true Typhus." The ill effects occasionally observed have been increase of coma and delirium, and great depression of the vital powers. *In Typhoid (Enteric) Fever*, Dr. Murchison† speaks very favourably of Quinine given as follows:—℞ Quiniæ Sulph. gr. ¼—gr. j., Acid. Sulph. Dil. vel Acid. Hydrochloric. Dil. ♏xv.—xxx., Syr. Aurant. f℥ss., Aq. Carui f℥j., M., ft. haust tertiâ vel quartâ horâ sumend. Though it has no power to cut short the fever, yet, under its use, the febrile exacerbations become reduced in severity, the appetite improved, and the strength increased. Much of the benefit is probably due to the acid. *In Relapsing Fever*, Quinine has been used with the view of warding off a relapse, but, like all other medicines, it has proved inoperative.

2326. *In Puerperal Fever*, Dr. Cabanellas‡ employed Quinine in several cases with the best results. He premises the use of emetics and poultices to the abdomen, and then prescribes Quinine in doses of ten or fifteen centigrammes every hour day and night. It is to be hoped that further trials with this remedy will be made in epidemical forms of the disease.

2327. *In Scarlet Fever and Exanthemata generally*, when debility occurs, and the fever assumes a typhoid character, tonics are indicated; and of these, none is equal to Quinine given in combination with Acid. Sulph. Dil.; port wine and nutritious food being given at the same time. Cinchona has long been highly esteemed in these cases, and has the recommendation of De Haen, Sauvages, Cullen, and Percival. *In Scarlatinal Albuminuria*, the remedy which has proved most effectual in the hands of Dr. Hamburgher§ is Sulphate of Quinine. It is not admissible in the early acute stage. Dr. Mouser‖ considers that he has seen great benefit in *Small-pox* from the exhibition of Quinine (gr. ij. every three hours), from the commencement of treatment until all febrile symptoms had subsided and desiccation was fully established.

* On Fevers of Great Britain, &c., p. 262.
† Op. cit., p. 571.
‡ Med.-Chir. Rev., July 1862.
§ Archiv. Gén. de Méd., April 1861.
‖ Ranking's Abstract, xxxvii. p. 41, 1863.

2328. *Periodical or Intermittent Diseases.* When any affection assumes a periodical type or character, particularly if there be reason to suspect a malarious origin or influence, Quinine is indicated, and will be found efficacious, even where other circumstances might appear to warrant some other mode of treatment.

In Intermittent Angina Pectoris, Dr. Forbes * advises the use of Quinine. *In Spasmodic Asthma assuming a periodical character*, it often proves effectual. Great caution, however, is requisite in its use: unless the periodic type is well marked, if given injudiciously, it will prove injurious. Floyer, Bree, Ryan, and others, advocate its use in the periodic form; and Dr. Hogan† relates many cases in which, in doses of gr. iij.—viij., it proved most successful. *In Intermittent Hemicrania, Headache, Brow Ague, Tic Douloureux, and other Neuralgic Affections*, it has proved effectual in the hands of Drs. Elliotson,‡ Hunt,§ Sir B. Brodie,‖ &c. *In Intermittent Hiccough*, it has also been used with success.¶ Dr. Lohman** mentions a case of *Intermittent Ophthalmia* which yielded to its use; and Sir B. Brodie†† found it effect a cure in a case of *periodical Stricture of the Urethra*. *Hay Fever or Hay Asthma*, when it assumes a periodic form, usually yields rapidly to the exhibition of Quinine.

2329. *In Neuralgia and Tic Douloureux*, Quinine proves most serviceable; gr. vj. daily is generally sufficient, but larger doses are sometimes necessary. Mr. Hogg‡‡ advises gr. x. with Acid Sulph. Dil. ♏x. in a single dose. He found that this generally arrested the progress of the disease, and that he had seldom occasion to repeat the dose.

2330. *In Acute Rheumatism*, Cinchona was first employed in England by Dr. Haygarth,§§ in 1772; and subsequently by Dr. Lettsom, Dr. Heberden, Sir Walter Farquhar, and others. Dr. Haygarth first administered Tartar Emetic until the stomach and bowels were sufficiently cleansed, and then commenced with Cinchona, at first in small doses, and, if they did not disagree, in larger ones; in some instances he employed blood-letting by the lancet, or by leeches, or by both. He adds that, with but few exceptions, the bark produced the most salutary effects. It was always discontinued if it disagreed, or increased the fever; and Antimony was again had recourse to. This line of practice, however, fell into disuse till a recent period, when the French

* Cyc. Pract. Med., vol. i. p. 95.
† Amer. Med. Intel., Feb. 1842.
‡ Med. Gaz., vol. vii. p. 468.
§ On Tic Douloureux, &c., 8vo, 1844.
‖ On Local Affections, p. 28.
¶ Med.-Chir. Rev., Jan. 1842.
** Med. Times, vol. xviii. p. 89.
†† Dis. of Urinary Organs, p. 40.
‡‡ Lancet, Nov. 1850.
§§ Clinical Hist. of Acute Rheumatism, Lond. 1805.

physicians re-introduced a similar mode of treatment, substituting Quinine for the crude bark. M. Briquet * states that, given in the following large doses, it proves of the highest value. On the first day, ʒj.—ʒiss. (according to the age of the patient) is given in divided doses, in the course of twelve hours. The same doses are repeated on the second and third days, by which time the severity of the symptoms were usually abated, and the doses are gradually diminished, at the rate of gr. xv., daily. The average duration of the pain and swelling of the joints was from three to five days. In more than one-third, there was cardiac complication, recent or chronic. In all but four cases, out of the twenty-three of which he gives a detailed account, there was marked abatement of the symptoms in twenty-four hours. Relapses occurred in two only. M. Devergie,† in testing Briquet's statements, commenced with smaller doses, and gradually increased them. He confirms Briquet's views of the value of Quinine in this disease, excepting that he found smaller doses answer all the purposes of the larger ones. Many other French physicians advocated the practice; but some fatal cases in the hospitals of Paris having occurred under this system, it has been in a great measure abandoned.

2331. *In Enlargement of the Spleen*, co-existing with intermittent fever, the most efficacious remedy which we possess is the Sulphate of Quinine, in doses of gr. xv.—xx. daily. M. Nonant,‡ and other French writers, advise it in much larger doses (gr. xl.—l.), which are to be persevered in until the spleen returns to its normal size. It may not be out of place here, to mention that Piorry's proposition, that enlargement of the spleen is the actual cause of intermittents, has been ably disproved by Dr. George Smith,§ of the Madras Medical Service, who, out of 4,000 cases of well-marked ague, was unable to detect any affection of the spleen, excepting in a few rare cases. Piorry also relates numerous cases and experiments, to show the influence of Quinine on enlarged spleen; one example will suffice. In several dogs the spleen was uncovered, and several liquids were injected into that viscus without producing any change in its size. An alcoholic solution of Quinine was then injected, and within one second the spleen contracted, and lost ½ of its volume in one animal, and ⅛ in the others. The same marked and uniform effect is not produced when the medicine is given internally, as will be seen on reference to the subjoined table, given by Dr. Smith:—

* Gaz. des Hôpitaux, Nov. 17, 1850.
† Gaz. Médicale, Dec. 30, 1842.
‡ Med.-Chir. Rev., July 1840.
§ Medical Reports, Madras, 1850, p. 103; and Ranking's Half-Yearly Abstract, vol. xiv. p. 227.

	Size of the Spleen.	Dose of Quinine given.	Time which elapsed before effect seen.	Amount of reduction.
	Inches long.	Grains.		
1	10½	30	No effect observed..	
2	6½	10	Three minutes.....	¼ of an inch.
3	6½	10	No effect	
4	6¾	15	Ten minutes.....	¾ of an inch.
5	6¾	15	Two minutes	1 inch.
6	5¾	15	No effect	
7	4¾	15	Ten minutes	Distinctly reduced.
8	5	15	Ten minutes	1 inch.
9	4	15	No effect	
10	5¾	15	Ten minutes	¼ an inch.
11	5¼	15	Four minutes	Most marked reduction.
12	6	15	Ten minutes	½ an inch.
13	6	15	No effect	
14	6	15	No effect	
15	7½	15	Five hours	1½ inches.
16	7	15	Five hours	3¼ inches.
17	7	15	Five hours	3 inches.

From this table, it appears that the remedy failed entirely in six cases. Of the eleven benefited, seven proved permanent, and four temporary, the spleen in these last having regained its previous volume.

2332. *In Phthisis*, Cinchona long enjoyed the reputation of a specific. This opinion was supported by Morton, Sedillot, and De Metternich, while by others it has been prescribed only to answer particular indications. Mead advises it before, and Heberden after, ulceration has taken place. Dickson limits it to hæmoptysis; Fothergill to the latter stages of the disease; and Bayle seems to regard it solely as an anti-periodic. "From a variety of evidence," observes Dr. Cowan,* "it may be concluded that bark must be prescribed on the same general principles which indicate its administration in other chronic diseases, and that it has no claim to the character of a specific for Phthisis." In Louis's practice, Quinine was given in some cases where the rigors were very troublesome and regular in their recurrence; they yielded to the remedy, but the heat persisted, and the rigors also returned when the medicine was abandoned. The supposition that Quinine exerts any specific influence on the progress of Phthisis is now entirely abandoned. It is, however, commonly prescribed as a valuable tonic in that disease. It is generally given in doses of gr. j.—gr. ij. in combination with Sulphuric Acid and the Sulphate of Iron, or in the form of Citrate of Iron and Quinine. Cod Liver Oil may be administered at the same time.

* Translation of Louis on Phthisis, p. 377.

2333. *In the advanced stages of Pneumonia and Pleurisy*, when the patient is old, the constitution debilitated, and the case assumes a typhoid character, the Sulphate of Quinine, in combination with Sulphuric Acid, may be given with great advantage. *In Gangrene of the Lungs*, even when accompanied by extensive hepatization, Laennec advises Quinine, or Bark, in large doses. *In Asthenic Pneumonia*, the value of Quinine is forcibly pointed out by Dr. Corrigan.* The general dose is gr. v. every third hour: under its use the pulse becomes slow and steady, and the respiration free. If the patient be young, with evidence of capillary congestion generally over the system, its use is preceded by local depletion.

2334. *In Laryngismus Stridulus*, Dr. Mereit states that, in six out of twelve cases in which he administered Quinine, the effect was equally sudden and satisfactory. "It is chiefly useful," he observes, "in those weak and obviously nervous infants, who suffer for weeks or months from fits, but who, during the intervals, are free from all disease." It should be given in the largest doses that the child can bear, and during the intervals of the paroxysms. *In Hooping-Cough*, when the disease is protracted, and assumes an intermittent or periodic type, particularly a tertian form, Quinine or Cinchona should never be omitted. (Dr. Copland.‡) In the second or spasmodic stage of Hooping-Cough, Dr. Lecardre§ speaks highly of the modifying influence of Quinine. He gives it in powder from gr. iij.—gr. x. daily, according to the age of the child, each dose administered immediately after a paroxysm. The treatment of *Croup* by Quinine is advocated by Prof. Eastman.‖ He employs it in large doses, as there appears to be a great tolerance of the medicine. The only other measures he advocates are a full dose of Calomel and a warm bath.

2335. *In Erysipelas*, Cinchona, or its alkalies, have found many advocates. Amongst others, it has been advised by Fordyce, Heberden, Wells, Graves, and Jackson. Dr. Elliotson states that it proves beneficial in all forms of the disease, and may be given with perfect safety even in acute cases. This view, however, has not been universally adopted, its use being confined by some practitioners to the advanced stages of the disease, or to those forms which occur in debilitated constitutions, or when the vital powers are much depressed; in such cases, Quinine, conjoined with a generous diet, proves of eminent service. When the stomach is irritable, the medicine may advantageously be given

* Dub. Hosp. Gaz., Dec. 15, 1857.
† Ed. Monthly Journ., Nov. 1850.
‡ Dict. Pract. Med., vol. ii. p. 249.
§ Journ. de Méd. et de Chir. Prat., July 1855.
‖ New York Journ. of Med., Sept. 1859.

in the form of enema. Dr. Graves* relates a case in which it was thus employed with the best effects.

2336. *In Erythema Nodosum*, Dr. Watson† states that he has invariably found the disease yield to the exhibition of Quinine preceded by an active aperient. Rest and the horizontal posture should be enjoined.

2337. *In Urticaria*, Quinine often proves serviceable. I have found benefit from the following pills: — ℞ Quiniæ Sulph. gr. xij.; Pulv. Rhei gr. xxiv., M. ft. pil. xij., cap j. ter in die. It proves especially useful when the disease assumes an intermittent form. Mr. E. Wilson‡ advises its internal use in *Pemphigus*.

2338. *Scrofulous Ophthalmia*. In 1763, Dr. Fothergill and Dr. Fordyce recommended Cinchona in this affection, but to Dr. Middlemore is due the credit of bringing the practice prominently forward and establishing its use. Dr. Mackenzie§ considers that the treatment of Scrofulous Ophthalmia with the Sulphate of Quinine is an improvement in ophthalmic medicine scarcely less important than "the treatment of Iritis with Mercury." The dose for a child may be gr. j. thrice daily; that for an adult, gr. ij.—iij., at the same periods. Brisk purgatives should precede its exhibition; a light nutritious diet should be allowed. *In Nyctalopia and Hemeralopia*, Mr. Howard,‖ of Montreal, states that the treatment which he has found most effectual is, after the exhibition of a cathartic and emetic, to administer Quinine in as large doses as the stomach can bear. *In Acute and Chronic Iritis*, he speaks highly of the value of the combination of Calomel and Quinine, the former being omitted when the gums become sore, but the latter to be continued.

2339. *In Puerperal Insanity*, if the skin be relaxed, and there exist a disposition to free and copious exudation, the Sulphate of Quinine, with the mineral acids, in considerable doses, will be of service. (Dr. Prichard.¶)

2340. *In Insanity*, Dr. Copland** observes that Cinchona, or the Sulphate of Quinine—the latter especially—is often preferable to other tonics, more particularly in the intermittent forms of the disease. The infusion of bark with the solution of the Acetate of Ammonia is most suitable when vascular or nervous excitement is passing into exhaustion, or in cases where the propriety of having recourse to tonics may seem doubtful. In circumstances of obvious exhaustion or inanition, in the more

* Clin. Lect., vol. ii. p. 329.
† Lectures, vol. ii. p. 836.
‡ Diseases of the Skin, p. 192.
§ On Diseases of the Eye, p. 363.
‖ Pathology of the Eye, p. 503.
¶ Lib. of Med., vol. ii. p. 142.
** Dict. Pract. Med., vol. ii. p. 533.

purely nervous states of the disorder, in advanced stages after evacuations have been carried sufficiently far, or where the head is cool and the pulsations of the carotid are not increased in strength or fulness, the Sulphate of Quinine, either alone or with Camphor, and with the Extract of Aloes, if the bowels require to be kept freely open, will often be of service. He advises two formulæ: the first, when the bowels are costive; the second, when they are relaxed:—1. ℞ Quinæ Disulph. ʒss., Camphor ℈ij., Ext. Aloes Pur. ʒss.—℈ij., Ext. Hyoscyam. ʒiss., Balsam. Peruv. q. s. ft. pil. L, cap. iij. bis terve in die. 2. ℞ Quinæ Disulph. ℈j., Camphor. ʒss., Pil. Sapon. c. Opio ʒj., Syrup. q. s. ft. pil. xxxvj., cap. ij. vel iij. bis in die.

2341. *In Epilepsy*, Cinchona was prescribed by Home,* and others; and, in *Chorea*, it has also been employed in some instances with advantage. It has been conveniently replaced by Quinine, which may prove serviceable when judiciously administered. It is chiefly indicated when the disease is of a purely nervous character, or when it assumes a periodic character, when the powers of life are much depressed, and there is much exhaustion of the nervous energy. In these cases Dr. Brown-Séquard† prescribes Quinine in large doses (grs. v.—x.—xv.) at intervals, just before the fit is expected. By this means he states the fit is frequently prevented, and the patient goes on to the next or even to a longer period. It is inadmissible until the bowels have been freely evacuated, when there is much gastric irritation, or a plethoric condition of the brain, or of the system generally. Under the circumstances above indicated, it may be advantageously combined with the Sulphate of Iron.

2342. *In Tetanus*, Quinine has been employed in numerous cases, and apparently with the best effect; in some, however, so many other measures were combined with the internal administration of Quinine, that it is difficult to say how far this medicine aided in effecting a cure. In a case under the care of Mr. E. Cock,‡ at Guy's Hospital, the patient, a youth æt. 18, took three grains of Quinine every four hours, with 12 oz. of Wine daily, and in the eleventh week after admission, the tetanic symptoms having gradually subsided, the patient was discharged. Another case of traumatic Tetanus, treated with Quinine, is related by M. Coste,§ the disease arose in consequence of a contused wound of the toes, and was arrested by large doses of the Sulphate (maximum, gr. xlv. in one day), after bleeding, baths, &c., had in vain been resorted to. The cure was effected in about a fortnight. If the patient is unable to swallow, the medicine may be given in the form of enema.

* Clinical Experiments, &c., p. 194.
† Med. Times and Gaz., Oct. 27, 1860.
‡ Lancet, June 28, 1851.
§ Ibid., July 5, 1851 (B).

2343. *In Gangrene and Mortification*, Cinchona has long been held in high esteem, and when these states are attended with great prostration of the vital powers, a debilitated state of the constitution, and general cachexia, or typhoid symptoms, its internal exhibition is followed by the best effects. It is not applicable to all cases, particularly when the digestive organs are much deranged. As a general rule, the decoction of Cinchona, with a small portion of the mineral acids, has a better effect than Quinine; but there are exceptions to this rule, as, for instance, when the digestive organs are impaired and unable easily to bear the quantity of bark which it is necessary to exhibit in order to produce a constitutional effect. Quinine may then be advantageously substituted.

2344. *In Cancrum Oris*, the constitution requires tonics, stimulants, &c., in order to support the strength. Dr. Graves* strongly recommends Quinine, either in the form of enema, or made into a syrup, and flavoured with dilute Sulphuric Acid. *In Aphthous Ulcerations*, when the constitution is much debilitated, it also proves highly serviceable.

2345. *In Scurvy, attended with much prostration*, Quinine may be given with great advantage. Much evident improvement follows its use, particularly when given with the mineral acids. It need not interfere with the use of Potash, Lemon-juice, or other anti-scorbutics. A decoction or the diluted tincture of Cinchona forms a very useful gargle. Myrrh or the Chlorates may be conjoined with it.

2346. *In Cholera*, Quinine is advised by Dr. Bell,† under a fancied resemblance which he considers to exist between this disease and intermittent fever. Dr. James Bird‡ also recommended it in combination with Iron, Camphor, and Opium, in order to support the powers of the nervous system and of the heart, and it has been occasionally prescribed by others, without any definite view whatever. In some instances it is stated to have proved eminently successful. Dr. Maxwell§ regards it as a preventive. He directs it to be taken in doses sufficiently large to cause ringing in the ears, with wine, &c., as hot as the patient can bear.

2347. *In Diarrhœa*, particularly when it assumes an intermittent or periodic type, Quinine, in combination with other remedies, appears to exercise a favourable influence. The Citrate of Iron and Quinine has proved very effectual in the *Infantile Cholera* (so common in the neighbourhood of London)

* Clin. Lect., vol. ii. p. 520.
† On Cholera and Intermittent Fever, 1849.
‡ On the Pathology of Cholera, Lond. 1849.
§ Med. Times, vol. xix. p. 196.

in the hands of Dr. Cormack, of Putney; and Dr. Evans, of Tazewell (U.S.), states that it enters into the most famous nostrums in use in Mexico, against this disease.*

2348. *In Dysentery*, Cinchona has long been esteemed in the treatment of the advanced stages, and is recommended by Clark, Douglas, Huxham, Pringle, Cullen, and others. The last-named physician limited its use to the disease when it assumes a remittent form. In the asthenic and malignant varieties, and also in the advanced stages of the disease, when the vital powers and nervous energy are much exhausted, Quinine, with small doses of T. Opii, may prove very serviceable. It may also be advantageously combined with Camphor.

2349. As an *Anthelmintic*, especially in cases of *Ascarides lumbricoides*, the value of Quinine has been pointed out by Dr. Delvaux.† For children between two and ten years, the dose ranges from grs. iij.—vj.; for adults, grs. ix. in the twenty-four hours. Injections containing the Sulphate, every evening, he found effectual in removing thread-worms from the rectum; and he likewise mentions two cases in which tænia were expelled under its use. As far back as 1764, Van Doeveren, of Gröningen, pointed out the anthelmintic properties of Cinchona.

2350. QUINIDINA. Quinidine. An alkaloid contained in many of the Cinchona Barks, especially in Fibrous Carthagena Bark, C. Condaminea (*var.* δ lancifolia), C. lancifolia (*Mutis*). It is isomeric with Quinine ($C_{40}H_{24}N_2O_4$), with four equivalents of Water when crystallized. (Garrod.) The Sulphate of Quinidine ($C_{40}H^{24}N_2O_4$, HO, SO_3 + 6 HO) is sometimes substituted for Sulphate of Quinine. It is much more soluble in Water and in Spirit than in the Sulphate of Quinine.

Med. Prop. and Action. Believed to be the same as those of Quinine, but the relative power of the two alkaloids requires investigation. Dr. Peacock‡ has administered the Sulphate of Quinidine as an *anti-periodic*, in doses of three to six grains, with perfect success. In some cases a dose of fifteen grains was given at first. Dr. Peacock considers Quinidina as efficacious as Quinia, while it possesses the advantage of not giving rise to the disagreeable nervous effects occasionally observed when Quinia is administered in large doses.

Dose of Sulphate of Quinidine, gr. j.—gr. x.—gr. xx.

2351. RESINA. Resin or Rosin. The residue of the distillation of the Turpentines from various species of Pinus and Abies. The colour of the Resin depends upon the amount of heat employed in this process; the greater the heat, the darker the colour.

* Braithwaite's Retrospect of Medicine, &c., vol. xxiv. p. 130.

† Presse Méd. Belge, April 1855.

‡ Med. Times and Gaz., Nov. 1, 1856; quoted in Pereira, Ed. 1857.

Mel. Prop. and Action. It is never given internally; finely powdered, it is occasionally applied as a styptic *to recent wounds*. It is a component in many plasters and cerates. The Ointment is useful in cases of *foul and indolent ulcers*. Under the name of Colophania, Resin has been proposed as an anti-periodic, but on insufficient grounds.

Offic. Prep. 1. Emplastrum Resinæ (Resin in powder oz. iv.; Litharge Plaster lb. ij.; Hard Soap in powder oz. ij. To the Litharge Plaster previously melted with a gentle heat, add the Resin and Soap, first liquefied, and heat them together until thoroughly mixed).

2. Unguentum Resinæ (Powdered Resin oz. viij.; Yellow Wax oz. iv.; Simple Ointment oz. xvj. Melt with a gentle heat, strain through flannel, and stir constantly until it cools). A substitute for Basilicon Ointment, Ceratum Resinæ (Pharm. Lond.).

2352. Rhamnus Catharticus. Common or Purging Buckthorn. *Nat. Ord.* Rhamneæ. *Linn. Syst.* Pentandria Monogynia. *Hab.* various parts of Europe.

Med. Prop. and Action. Hydragogue cathartic, in doses of gr. xx. of the recent fruit or berries, gr. lx. of the dried fruit, or fl. oz. ss. of the expressed juice (Succus Rhamni). Buckthorn is best given in the form of syrup (Syr. Rhamni, Pharm. Lond. 1851), in doses of fl. oz. ss.—fl. oz. j. Its operation is brisk and sometimes severe, occasioning griping, nausea, vomiting, dryness of the mouth and throat, and leaving a thirst of long duration It should always be given in conjunction with carminatives. The syrup is often given to children in doses of fl. drm. ss —fl. drs. ij.

Therapeutic Uses. It was formerly highly esteemed in *Rheumatic, Gouty, and Dropsical Affections*, but it has no advantage over other purgatives, is more offensive, and operates more severely. It is now rarely employed, excepting in domestic practice.

2353. Rhatany. Krameria. The dried root of Krameria Triandra. *Nat. Ord.* Polygalaceæ. *Linn. Syst.* Tetrandria Monogynia. *Source*, Peru.

Med. Prop. and Action. Astringent. It is best administered in infusion, or in the form of extract. Its astringency depends upon the presence of Tannin, of which the good root contains about 40 per cent. It contains also a peculiar acid (Krameric Acid) and a red astringent matter.* It is a powerful and valuable astringent.

Offic. Prep. 1. Extractum Krameriæ (Rhatany in coarse powder lb. j.; Distilled Water Cj. Prepared by maceration, percolation, and evaporation). Dose, gr. iij —gr. xx.

2. Infusum Krameriæ (Rhatany bruised oz. ss.; Boiling Distilled Water fl. oz. x. Infuse one hour, and strain). Dose, fl. oz. j.—fl. oz. ij.

3. Pulvis Catechu Compositus. (See Catechu.)

4. Tinctura Krameriæ (Rhatany bruised oz. iiss.; Proof Spirit Oj. Prepared by maceration and percolation). Dose, ℥xxx.—fl. drs. iss.

Dose of Rhatany in powder, gr. x.—gr. xl., or more.

Incompatibles. The Mineral Acids; Lime Water; solutions of the Salts of Iron, of the Acetate of Lead and Iodine; all solutions containing Gelatine.

Contra-indications. 1, Inflammatory states of the alimentary canal; 2, obstinate constipation.

* Garrod, Ess. Mat. Med. and Therap., p. 166.

2354. *Therapeutic Uses. In Atonic or Passive Hæmorrhages*, Rhatany, either in the form of infusion or extract (*ut supra*), has been found signally beneficial. It is doubtful whether it possesses any advantages over Tannin, excepting in general being more easily obtainable *In Hæmaturia*, it was found by Dr. Watson* to be effectual, after all ordinary measures had failed. He gave it in doses of ℈j. of the extract, thrice daily. Sir B. Brodie† also found it efficacious. *In passive Hæmorrhage from the Intestines*, it was successfully employed by Lombard, of Geneva; and M. Rilliet‡ relates two cases of *intestinal Hæmorrhage in new-born infants*, which were cured by injections of the infusion of Rhatany, and compresses soaked in the same, applied to the abdomen. *In Menorrhagia*, particularly when occurring about the usual time of the cessation of the menses, Dr. Dewees§ speaks highly of the efficacy of Rhatany, and quotes the successful employment of it by Gardien and Ruitz. He employs the annexed formula:—℞ Ext. Rhatan. ʒij., Pulv. Rhei ʒss., Syrup q. s. ft. pil. xl., sumat. ij. ter in die. He adds that, although he found this quantity generally successful, he should not hesitate to increase it greatly, if it were necessary.

2355. *In Leucorrhœa*, attended by relaxation of the tissues generally, and by debility, the Extract, in doses of gr. xx. daily, proves serviceable in arresting the discharge, and giving a healthy tone to the system. The infusion may, at the same time, be used as an astringent injection.

2356. *In Ozæna*, Dr. Detmold,‖ of Hanover, advises the following formula:—℞ Decoct. Rhataniæ f ʒxij., Calcis Chlor. ʒj.—ʒij., M. Of this, f ʒss. is to be injected into the nostrils, three or four times daily, with a syringe, whose point is sufficiently long to carry the fluid up into the nasal passages. Under its use, the most fetid and profuse nasal discharges were benefited or cured.

2357. *In Chronic Catarrhal Ophthalmia*, Dr. M. Pavise recommends a strong infusion of Rhatany as a collyrium. It may be applied three or four times a day, with or without a few drops of Liq. Plumbi. He found it an efficacious remedy.

2358. *In Chronic Diarrhœa*, it has been successfully employed by Dr. Hurtado,¶ and other Spanish physicians. It appears to be chiefly useful when the stools are mucous and slimy, and in the absence of all inflammatory action.

2359. *In Intermittents*, a strong decoction has been highly spoken of as an anti-periodic, but its efficacy is doubtful.

* Lectures, vol. ii. p. 668.
† Loc. cit.
‡ Gaz. Médicale, Dec. 30, 1848.
§ On Diseases of Females, p. 156.
‖ Brit. For. Med. Rev., No. xxiv.
¶ Journ. de Méd, t. xxxvii. p. 216.

2360. *Fissures of the Anus.* Numerous cases, occurring both in adults and children, cured by Rhatany injections, are reported by Trousseau,* Bretonneau,† and others. The intestines must first be cleared out with a simple injection of mucilage. After the lapse of half an hour, an injection, composed of 38 oz. of Water, ʒj.—ʒiiss. of Extract of Rhatany, and fʒv. of Alcohol, is administered. This is to be repeated in the evening. When the pain is moderated, only one glyster is to be given daily; and when the cure appears to be completed, every alternate day for a fortnight longer. Trousseau also advises an ointment of one or two parts of the Extract, to five of Lard. The testimony in favour of this treatment is very strong. Injections of a diluted tincture of Rhatany (1 to 16 of water) were found effectual by Dr. Rotté,‡ but they do not appear to have any special advantages.

2361. *In spongy and bleeding Gums*, the powder has been employed as a dentifrice; the Tincture is also a good application. The infusion forms a useful gargle in some forms of *Relaxed Sore Throat.*

2362. Rheum. Rhubarb. The root of one or more undetermined species of Rheum. *Nat. Ord.* Polygonaceæ. *Linn. Syst.* Enneandria Monogynia. *Source*, various, principally China, Thibet, and Tartary.

Med. Prop. and Action. Dr. Pereira enumerates eleven species of Rheum yielding the Rhubarb of commerce, and describes twelve different sorts which are met with; for the particulars of which the reader is referred to his valuable work, and also to that of Prof. Royle, on Materia Medica. Their medicinal properties are very similar, although they differ in strength and activity. The English Rhubarb is hardly so purgative, in the same doses, as the Russian and Chinese varieties; and the Himalayan is almost equal to the Russian, but less aromatic, though more astringent. The following are the characters of Rhubarb, as given in the British Pharmacopœia:—"Trapezoidal, roundish, cylindrical or flattish pieces, frequently bored with one hole, yellow externally, internally marbled with fine waving greyish and reddish lines, finely gritty under the teeth; taste bitter, faintly astringent, and aromatic; odour strong and very peculiar." The tests for its purity are, that it be free from brown specks externally and internally, and without cavities, and that Boracic Acid does not turn the yellow exterior brown. Impurities are detected in the powder with difficulty. It should be of a fine bright buff-yellow colour. When chewed, Rhubarb should impart to the saliva a deep saffron tinge, and it should not prove slimy or mucilaginous in the mouth. It contains a peculiar crystalline principle, Rheine, or Chrysophanic Acid, $C_{20}H_8O_6$, several resins, a bitter principle, and astringent matter (Tannic and Gallic Acids). Oxalate of Lime in crystals (raphides) exists in varying quantities in Rhubarb. From Russian Rhubarb Mr. Queckett obtained from 35 to 40 per cent. of Oxalate of Lime. Its purgative principle has not yet been isolated. When taken internally, Rhubarb is absorbed into the system, communicates a deep yellow or red colour to the urine, the odour

* Gaz. Méd. de Paris, Sept. 5, 1840.
† Journ. de Chirurg., 1846.
‡ Journ. des Connaiss. Med.-Chir., Sept. 1853.

may be detected in the cutaneous secretion, and the milk of a nurse is rendered purgative. That it exercises a specific action on the intestines is shown by Alibert,* who found that frictions with Rhubarb, or a Rhubarb cataplasm placed over the abdomen, produced a brisk purgative effect, although he was unable to detect it in the urine. "It operates," observes Dr. Garrod,† "more by an increase of the peristaltic motions of the canal, than by augmenting the intestinal secretions; the stools which it produces are accordingly feculent; and, since the drug contains astringent principles, its operation is followed by a more or less confined condition of the bowels." Its purgative action is increased by the addition of the Sulphate of Potash. It is particularly adapted as an aperient for children; but in cases of habitual constipation, it is inadvisable, on account of its subsequent astringent effect.

Offic. Prep. 1. Extractum Rhei (Rhubarb, sliced or bruised, lb. j.; Rectified Spirit fl. oz. x.; Distilled Water Ov. Prepared by macerating the Rhubarb in the Spirit and Water for four days, and subsequent evaporation at a temperature not exceeding 160°). Dose, gr. iij.—gr. x.

2. Infusum Rhei (Rhubarb in thin slices oz. ½; Boiling Distilled Water fl. oz. x. Infuse for one hour, and strain). Dose, fl. oz. j.—fl. oz. ij.

3. Pilula Rhei Composita (Powdered Rhubarb oz. iij.; Powdered Socotrine Aloes oz. ij.½; Powdered Myrrh oz. iss.; Hard Soap oz. iss.; English Oil of Peppermint fl. drs. iss.; Treacle by weight oz. iv.). Dose, gr. v.—gr. xv.

4. Pulvis Rhei Compositus (Powdered Rhubarb oz. ij.; Light Magnesia oz. vj.; Powdered Ginger oz. j.). This powder is known as "Gregory's Powder." Dose, gr. xx.—gr. lx., or more.

5. Tinctura Rhei (Bruised Rhubarb oz. ij.; Bruised Cardamoms oz. ½; Bruised Coriander oz. ½; Saffron oz. ½; Proof Spirit Oj. Prepared by maceration and percolation). Dose as a stomachic, fl. drm. j.—fl. drs. ij.; as a purgative, fl. oz. ss.—fl. oz. ij.

The *Dose* of powdered Rhubarb must be regulated by the effect it is desired to produce. For adults, in doses of gr. iij.—vj., it acts as a stomachic and astringent; in doses of gr. xv.—xl. it is a mild purgative without acridity, though it sometimes causes griping. The doses of the different varieties of Rhubarb differ considerably. As a purgative the dose of Russian (so called Turkey) or China Rhubarb is gr. xv.—gr. xl.; of the English, gr. xxv.—gr. lx.; of the Himalayan, gr. x.—gr. xxx.

Incompatibles. The strong Mineral Acids; solutions of most metallic Salts.

2363 *Therapeutic Uses. In Dyspepsia*, Rhubarb proves highly serviceable, being warm and carminative in its nature, speedy in its action, and neither stimulating nor drastic. It was highly esteemed by the late Dr. M. Baillie,‡ who advised gr. viij., made into pills with soap, to be taken every night at bedtime, together with some mild bitter infusion, and an alkali in the daytime. This, he states, if persevered in, proves more beneficial than any other remedy he knows of. Dr. Todd§ states that he has derived great benefit from the following mixture, originally proposed by Dr. Fothergill:—℞ Aloes ʒj., Rad. Rhei, Rad. Glycyrrh. āā ʒss., Spt. Lavand. Co. fʒss., Aq. Calcis fʒviij., M. Infuse for twelve hours, and strain. Dose, two tablespoonfuls, two or three times daily. Dr. Chapman‖ extols his "peristaltic persuaders,"

* Nouv. Elémens de Thérap., t. ii. p. 247.

† Mat. Med., p. 304.

‡ Posthumous Works, p. 194.

§ Cyc. Pract. Med., vol. ii. p. 618.

‖ Diseases of the Thoracic and Abdominal Viscera.

which are thus composed:—℞ Pulv. Rhei ʒj., Pulv. Ipecac. Rad. gr. x., Ol. Carui ♏x., G. Acaciæ q. s. ft. pil. xx., sumat. ij. omni nocte. An old plan of administration, but one which often proves highly useful, is for the patient to chew a piece of solid Rhubarb. By this means no more is swallowed than what is dissolved in the saliva, and this is sufficient to keep the bowels regular, and to impart a tone to the digestive organs without producing any subsequent constipation. I have known men employ it thus for years with evident advantage.

2364. *In the Constipation of Children*, Rhubarb, conjoined with Magnesia, is a popular aperient; but it is objectionable on account of its subsequent astringency. *In the Puerperal state*, gr. xx.—gr. xxx., in some aromatic water, with or without a few drops of T. Opii, is a good aperient if Castor Oil be objected to. *In the Constipation of Anæmic Females*, Dr. Ashwell advises the following:—℞ Pulv. Rhei, Mag. Carb. āā ʒss., Conf. Arom. ℈j., Aq. Cinnam. fʒix., T. Card. Co. fʒj., M. ft. haust. To be taken at bedtime, every three or four days.

2365. *In Diarrhœa*, Rhubarb often proves highly useful. After removing any crude or irritating matters from the intestines by its purgative property, it acts as an astringent and tonic, and is often by itself sufficient to effect a cure. Some care, however, is necessary in ascertaining the cause of the Diarrhœa, as in the inflammatory form it proves injurious. The astringency of Rhubarb is increased, and its purgative power decreased, by the process of roasting; and in this state it is strongly advised by Mr. Hoblyn.* He directs it to be burnt in an iron crucible, until it oses two-thirds of its weight, and then to be given in doses of gr. v.—x. when necessary. He states that, in the *Diarrhœa of Phthisis*, he found it more useful than Chalk or Opium.

2366. *In Gout*, Rhubarb, taken regularly between the intervals, proves highly serviceable; often, apparently, warding off an attack. At the period of an impending paroxysm, Sir H. Halford states that he has had incomparably the most satisfaction in giving a few grains of Rhubarb, and double the quantity of Carbonate of Magnesia, every day, either at bedtime or early in the morning; or, under evident weakness of the powers of digestion, fʒss. of T. Rhei Co., with gr. xv. of Potas. Carb. in some light bitter infusion daily, before the principal meal. For the same purpose, Dr. Graves advises the following mixture:—℞ Aurant. Cort. ʒij., Pulv. Rhei ʒj., Pulv. Aloes c. Canellâ (D. Ph.) ʒij., Spt. Vin. Gallici Oiv., M. Dose, a tablespoonful of the strained liquor in water, night and morning.

2367. *In Urticaria*, Rhubarb, from its carminative property,

* Lancet, 1840-41, vol. i. p. 790.

is the aperient which is most indicated, particularly when the disease occurs in young females. The following draught is advised by Dr. Houghton:*—℞ Pulv. Rhei, Mag. Carb. āā gr. x. —xv., Spt. Ammon. A. ɱxx., Aq. Cinnam. fʒiss., M. ft. haust. *In the Aphthæ of Children*, a similar formula, in small doses, proves highly serviceable.

2368. *In Diabetes*, Dr. Copland† observes that there are few remedies that deserve a more favourable notice than Rhubarb. It received the warm approbation of Baglivi and Lister, who recommended it in conjunction with aromatics; and of Brocklesby, Morton, Buckwald, and Harris. Dr. Baillie prescribes it with Laudanum. Dr. Copland, after quoting these authorities, observes that he has employed it frequently as an aperient, both in powder and in infusion, and he combines it with vegetable tonics, aromatics, and Opium, with the intention of promoting the digestive and assimilating powers; and he adds that, in his opinion, it is one of the best remedies which can be used in this disease.

2369. *In Dropsy*, Dr. Copland‡ also considers that the diuretic action of Rhubarb is deserving of notice. When given, he observes, either in small doses, or in infusion as a vehicle for other substances of the same nature—as the saline diuretics and the preparations of Squills, of Juniper, or of Colchicum—it is a useful medicine in dropsies.

2370. *To foul and indolent Ulcers*, the application of finely-powdered Rhubarb was first proposed by Sir E. Home.§ It has since been occasionally employed. Mr. Alfred Markwick‖ relates a case of *sloughing venereal ulcer*, which speedily yielded to its use. It causes great constitutional irritation.

2371. Rhododendron Chrysanthemum. Oleander or Rosebay. *Nat. Ord.* Ericeæ. *Linn. Syst.* Decandria Monogynia. *Hab.* Siberia.

Med. Prop. and Action. Stimulant. When first taken, it causes heat in the stomach, and increased arterial excitement, followed by great depression and copious diaphoresis. Home observed, that it greatly depresses the pulse, in one instance to thirty-eight beats in the minute. In large doses it is an acro-narcotic poison.

2372. *Therapeutic Uses. In Rheumatism*, it has long been highly esteemed by the inhabitants of Siberia, who macerate ʒiv. of the leaves in fʒx. of hot water, and give the whole of this, strained, for three or four successive mornings. It is stated to be very efficacious. At first it causes a creeping sensation of

* Cyc. Pract. Med.
† Dict. Pract. Med., vol. i. p. 514.
‡ Op. cit., p. 624.
§ On the Treatment of Ulcers, &c., 1801, p. 96.
‖ Med. Gaz., July 29, 1842.

the parts, but this soon subsides, and the pain is relieved. It has been strongly advised by Gmelin,* Koelpin, Woodville, and others. It is also said to be useful in *Gout*, *Rheumatic Gout*, *and Syphilis*.

RHŒAS. See PAPAVER RHŒAS.

2373. RHUS TOXICODENDRON. Poison Oak, or Sumach. *Nat. Ord.* Terebinthaceæ. *Linn. Syst.* Pentandria Trigynia. *Hab.* North America, Japan, &c.

Med. Prop. and Action. The leaves (*off.*) are stimulant, in doses of gr. ½, cautiously and gradually increased to gr. iv. daily, in the form of pill. In large doses, they are a powerful, acro-narcotic poison. The stems, when cut, exude a milky juice, which is said to produce inflammation of the skin, when applied to it, and which turns black on exposure to the air. The whole plant evolves a deleterious vapour, which, in some persons, produces violent irritation, swelling, pain, &c. These properties depend upon an acrid principle, supposed to be a hydro-carbon. The leaves contain Gum Resin, Gallic and Tannic Acid, and a narcotic principle. (Royle.)

Dose of the powdered leaves, gr. ½—gr. j.

2374. *In Paralysis*, it has been advised by Du Fresnoi, Dr. Alderson, of Hull, and Dr. Duncan.† It proved successful in four cases in which it was employed by Dr. Alderson; in each, a peculiar feeling of pricking or twitching preceded permanent benefit. This sensation was so unpleasant, that Dr. Duncan states that, on this account, he was obliged in one instance to discontinue the medicine. In general, it operated as a gentle laxative, notwithstanding the torpid state of the bowels of such patients. It may be commenced in doses of gr. j. of the dried leaves, and continued until gr. iv.—v. are taken daily, or until a pricking sensation is experienced in the affected part. Frictions with oil in which the leaves have been digested may be employed at the same time. Great caution is necessary in its use, and it is now almost discarded, being superseded by Strychnia. It has been employed in *Neuralgia and Amaurosis*, but with indifferent success.

2375. RICINUS COMMUNIS. Palma Christi, or Castor Oil Plant. *Nat. Ord.* Euphorbiaceæ. *Linn. Syst.* Monœcia Monadelphia. *Hab.* East Indies, America, and the Tropics generally.

Med. Prop. and Action. The seeds are powerfully acrid and purgative; and in large doses, acro-narcotic poisons, twenty of them having proved fatal. They abound in a fixed oil (*infra*). In appearance, they closely resemble the tick; hence their name, *Ricinus*, the Latin name for that insect. Prof. Royle has identified them with "the gourd" of Scripture, and they appear to have been employed by Eastern nations for many centuries. They are not used in medicine, in their natural state. *The leaves*, according to Dr. M'William,‡ are

* Flora Siberica, vol. iv. p. 121.
† Dispensatory, art. Rhus.
‡ Lancet, Sept. 7, 1850.

used by the women of Western Africa *to increase the secretion of milk*. He states, that a decoction is made by boiling a handful of the plant in Ovj.—Oviij. of Water. With this, the breasts are bathed for fifteen or eighteen minutes; part of the boiled leaves are also spread over the breasts; a copious flow of milk generally follows in a few hours. This statement is verified by Dr. Tyler Smith,* who also found it act successfully as an emmenagogue, in a case of *Amenorrhœa*. Dr. Routh† prescribes a decoction of the leaves internally, as a lactagogue, and states that, when thus taken, it has the effect of increasing in a marked degree the secretion of milk.

2376. OLEUM RICINI. Castor Oil: is obtained from the above-named seeds in three ways: 1, by expression; 2, by decoction; 3, by the agency of Alcohol. The expressed oil (*offic.*), called cold-drawn, is the most generally employed; it is much lighter coloured and clearer than that obtained by decoction, but I have invariably found that, if properly prepared, without too great an application of heat, the latter is the more powerful purgative, although it is more nauseous in its taste, and causes more griping than the cold-drawn oil. *Comp.* Carbon 74·00, Hydrogen 10·29, Oxygen 15·71, in 100. If pure, it is entirely dissolved in one volume of Alcohol, and in two volumes of Rectified Spirit.

Med. Prop. and Action. Castor Oil is one of the most valuable purgatives in the Materia Medica. The cold-drawn oil is particularly mild, and is well adapted for children, for *the puerperal state, inflammatory conditions of the alimentary canal, or of the genito-urinary organs, and after operations*. Castor Oil contains three oily acids,—the Ricinic, Ricin-Stearic, and Ricin-Oleic combined with Glycerine,—and an acrid resinous matter.‡ In doses of fl. oz. ss.—fl. oz. j., it produces two or three stools in the course of three or four hours, without griping or uneasiness. The great objection to it is its nauseous taste; to disguise this it is best given floating on strong coffee, milk, or some aromatic water. Magendie advises it with an equal quantity of syrup of lemons. Made into an emulsion with mucilage, flavoured with the juice of a lemon and ʒss. of T. Cardom. Co., its taste is effectually disguised. It may be administered in capsules. One of the great advantages of Castor Oil is, that it leaves very little, if any, subsequent constipation; and the dose, each time it is taken, may be gradually decreased, until fl. drm. j. is sufficient to produce a full evacuation. That it acts specifically upon the mucous membrane of the intestines is shown by the fact that, when injected into the veins, or rubbed on the abdomen, it acts as a purgative. In some persons it causes vomiting, but this is more the effect of its nauseous taste than of any inherent emetic property.

Dose, fl. drm. j.—fl. oz. j., or more.

2377. *Therapeutic Uses.* *In Dyspepsia*, attended with inflammation or vascular excitement of the pylorus and duodenum, there are some medicines which appear to exercise a direct antiphlogistic effect upon the mucous membrane of the intestines. At the head of these, Dr. T. J. Todd§ places Castor Oil, in doses

* Lond. Journ. of Med., Oct. 1850.
† Med. Times, June 4, 1849, p. 574.
‡ Garrod, Ess. Mat. Med. and Therap., p. 278.
§ Cyc. Pract. Med., vol. ii. p. 652.

of ʒj. daily. If its soothing and antiphlogistic effect be desired, it is best given at bedtime; if its aperient action, in the morning. "In the above cases," Dr. Todd observes, "Castor Oil is a most valuable remedy, often, by its soothing effect, acting like an opiate, and it has the most direct and remarkable power of allaying and relieving a heated state of the mucous membranes of the pylorus and duodenum. No medicine is more eminently endowed with this property. In obstinate cases of this disease, I have known," he states, "a small teaspoonful of Castor Oil, taken every night as long as the stomach could easily bear it, attended with the most signal success." The effects of Castor Oil upon the stomach afford a very good test of the nature of the morbid condition of its mucous membrane. In atonic Dyspepsia it is borne with the greatest difficulty, producing nausea and vomiting; in purely irritable Dyspepsia, a small dose of Castor Oil acts severely, and with much griping; but if there be any degree of vascular excitement of the mucous membranes, it soothes and quiets, and it is often most useful in this way when it has no aperient action. Its good effects will not be frustrated by administering it in any mild carminative water, in emulsion, in coffee, or by combining it with a little Liq. Potassæ.

2378. *In Colic*, when the stomach is not too irritable to bear it, Castor Oil is often productive of great benefit. In doses of fl. drm. j.—fl. drs. ij., with gutt. j.—ij. of Ol. Menth. Pip. and ɱx.—xx. of T. Opii, it generally affords great relief; even in *severe Ileus, and in the dry Belly-ache of the West Indies*, it has been found of great service. A full dose, fl. oz. j.—fl. oz. iss., may also be given as a purgative, with or without the Oil of Turpentine. *In Cholera*, Castor Oil, in doses of ʒss. every half-hour till the bowels are freely acted upon, is advised by Dr. G. Johnson.* This treatment caused some sensation at the time it was proposed, but it has fallen into disuse.

2379. *In habitual Constipation*, there is no purgative equal in efficacy to Castor Oil. It operates speedily, without much griping, and causes less subsequent constipation than any other purgative to remedy this state. It is well adapted for children, and for women during pregnancy. It may be given daily for some weeks, gradually reducing the dose, until less than ʒj. be taken, after which the bowels continue to act without further artificial assistance. (A. T. Thompson.)

2380. *To Bed-sores occurring in Typhus and other Fevers*, an excellent application is composed of two parts of Castor Oil and one of Balsam of Peru spread on pieces of lint, which are laid on the sore, and covered with a Linseed poultice, to be changed three or four times a day. (Murchison.†)

* Med. Times and Gaz., Sept. 9, 1854. † On Fevers, 1862, p. 286.

2381. *a.* Rosa Canina. Dog Rose. *Nat. Ord.* Rosaceæ. *Linn. Syst.* Icosandria Polygynia. Indigenous. The Ripe Fruit (Hips), deprived of the hairy seeds (achenes), (*offic.*).

b. Rosa Centifolia. Cabbage Rose. The Fresh Petals, fully expanded, (*offic.*).

c. Rosa Gallica. Red or French Rose. The unexpanded Petals, fresh and dried, (*offic.*).

Med. Prop. and Action. These plants (*Ord.* Rosaceæ) are of little value as therapeutic agents. The pulp of the fruit of R. Canina is employed in making a confection, which is useful as a vehicle for other medicines. The petals of R. Centifolia are valuable as the source of a distilled water (Aqua Rosæ), and a volatile oil, commonly called Attar of Roses. The petals of Rosa Gallica are exhibited in the form of compound infusion, which is a good vehicle for Quinine, the saline purgatives, &c. They also enter into the composition of a confection, into Mel Rosæ (Ph. L.) (which is a good application to the aphthæ of children), and into a syrup. None of these preparations possess any sensible properties, beyond a slight degree of astringency, which arises from the presence of a small portion of Tannic or Gallic Acid.

Offic. Prep. Of Rosa Canina: Confectio Rosæ Caninæ (Hips deprived of their seeds lb. j.; Refined Sugar lbs. ij. Beat the Hips to a pulp, add the Sugar, and incorporate). Used as a pill basis, and in the form of linctus. Dose, gr. lx., or more.

Of Rosa Centifolia: Aqua Rosæ (Fresh Petals of the Hundred-leaved Rose lbs. x.; Water Cij.; Distil Cj.). Used as a vehicle, in lotions, &c.

Of Rosa Gallica: 1. Confectio Rosæ Gallicæ (Fresh Red Rose Petals lb. j.; Refined Sugar lbs. iij. Beat the Petals to a pulp, add the Sugar, and incorporate). Used in making pills, linctuses, &c. Dose, gr. lx., or more.

2. Infusum Rosæ Acidum (Red Rose Petals oz. ½; Dilute Sulphuric Acid fl. drm. j.; Boiling Distilled Water fl. oz. x. Infuse for one hour, and strain). Dose, fl. oz. j.—fl. oz. ij.

3. Syrupus Rosæ Gallicæ (Dried Red Rose Petals oz. ij.; Refined Sugar oz. xxx.; Boiling Distilled Water Oj. Infuse the Petals in the Water for two hours. Dissolve the Sugar in the liquor by heat. The product should weigh 2 lbs. 14 oz., and have sp. gr. 1·335). Dose, fl. drm. j., or more.

Mel. Rosæ (Ph. L.) (Dried Red Rose Petals ℥iv.; Boiling Distilled Water f℥xxiv.; Honey lbs. v. Prepared by macerating the Petals in the Water, and adding the Honey to the liquor, then evaporating in a water-bath to a proper consistence). Dose, ʒj., or more.

Mr. Squire recommends an Infusion of Roses with Nitric Acid as a vehicle for Quinine, on the ground that the mixture is more bright and attractive than if made with the ordinary Acid Infusion. (For the formula, see Quinia.)

2382. Rosmarinus Officinalis. Common Rosemary. *Nat. Ord.* Labiatæ. *Linn. Syst.* Diandria Monogynia. *Hab.* South of Europe and Asia Minor. Cultivated in England.

Med. Prop. and Action. The tops are stimulant and carminative, which qualities depend upon the presence of a volatile oil. They also contain Tannin, and a bitter resin.

Offic. Prep. 1. Oleum Rosmarini (the Oil distilled in England from the flowering tops). Dose, ♏j.—♏v.

2. Linimentum Saponis. (See Sapo.)

3. Spiritus Rosmarini (English Oil of Rosemary fl. oz. j.; Rectified Spirit

fl. oz. ix.). This Spirit contains about thirty-one times as much Oil of Rosemary as Spiritus Rosmarini (Ph. Lond.).

4. Tinctura Lavandulæ Composita., (See LAVANDULA.)

Dose of Rosemary tops, gr. x.—gr. xl. in infusion; but they are rarely given internally.

2383. *Therapeutic Uses. In Hypochondriasis, Nervous Headaches, and Hysteria*, Rosemary tea was formerly held in high esteem. As a mild stimulant, it may occasionally prove beneficial.

2384. *In Amenorrhœa and Chlorosis*, it is favourably spoken of by Bergius,* but it appears to possess no specific action on the uterus.

2385. *In Alopecia or Baldness*, the Volatile Oil, diluted with some bland fixed oil, has been advised as a stimulant liniment. I have seen apparent benefit from the daily use of an infusion, *in preventing the hair falling off after fevers and debilitating diseases.*

2386. ROTTLERA TINCTORIA. Kamela, Kamila, or Kameela (*Hind.*). Wurrus (*Arab.*). *Nat. Ord.* Euphorbiaceæ. *Linn. Syst.* Diœcia Icosandria. *Hab.* East Indies.

Med. Prop. and Action. The dark red mealy powder mixed with the hairy spicule brushed from the outer surface of the capsules, possesses considerable power as an anthelmintic. The first notice of its use in this character, it having previously been employed largely as a dye, occurs in Royle's "Illustrations of Himalayan Botany,"† published in 1839, but it attracted little notice till 1853, when Dr. C. Mackinnon‡ recorded several cases of *Tænia* successfully treated by its use. These results were fully confirmed by Dr. T. Anderson,§ who furnishes a good account of its physiological action: he found that on an adult, the powder in a dose of 3ij.—3ss., in addition to purging, frequently caused nausea and vomiting, and in some cases griping. Its action on the bowels, however, was found to be very variable. A strong ethereal or alcoholic tincture, besides acting more mildly, was found to be followed by more uniform effects; and a dose of the tincture sufficient to produce the full anthelmintic effects of the drug was found never to be followed by more than six stools unattended with griping, or with any observable effects on the pulse or nervous system. The only objection to it is, that when the powder is used considerable nausea occasionally follows, although this does not appear to be more than that produced by pomegranate and other anthelmintics. Dr. Anderson also observed that, after 3iij. of the powder had been administered, the worm was usually expelled in the third or fourth stool, generally entire and almost always dead. Its action appears to be principally confined to Tænia. In cases of Lumbrici it seems to exercise very little effect beyond that of an ordinary purgative. Its value as an anthelmintic has been confirmed by Drs. C. A. Gordon,‖ Ramskill,¶ Leared,** and others. On the other hand, it is esteemed as inferior to the Oil of Male Fern, by Dr. Peacock,†† and it has fallen in the estimation of others. The dose of the powder is gr. cl.—gr. clxxx. for an adult, and it is unnecessary to give any other medicine before or after. Of the Alcoholic Tincture (oz. vj.—Sp. Rect. Oj.), the dose is

* Mat. Med., p. 21.
† Vol. i. p. 329.
‡ Indian Ann. of Med. Sci., i. p. 286.
§ Ibid., iii. 1855.
‖ Med. Times and Gaz., Nov. 1856, p. 538, and May 1857, p. 429.
¶ Lancet, 1858, vol. i. p. 476.
** Ibid., p. 541.
†† Med. Times and Gaz., Nov. 6, 1858.

fl. oz. ss., either in one or two doses, with some aromatic water. The natives of India employ an ointment of Kamela externally in itch and other skin diseases (Mackinnon); and Dr. W. Moore* states that in *Herpes circinatus* he found the Kamela applied on moistened lint an effectual cure. He considers that it may prove useful in other allied eruptions.

2387. RUBIA TINCTORUM. Madder. *Nat. Ord.* Rubiaceæ. *Linn. Syst.* Tetrandria Monogynia. *Hab.* Great Britain, &c.

Med. Prop. and Action. The root (*off.*) is tonic; it is also regarded as emmenagogue. When taken internally, the colouring matter is absorbed into the system, and communicates a red colour to the urine, milk, and bones.

Dose of powdered root, gr. xxx.—gr. cxx. every three or four hours.

2388. *Therapeutic Uses. In Amenorrhœa*, it has been used with advantage. Dr. Home,† of Edinburgh, found it successful in fourteen cases out of nineteen in which he employed it, in doses of ʒss. of the powdered root, two or three times a day. He generally fonnd that it restored the discharge abont the twelfth day after commencing its use. Dr. D. Davis‡ also states, that on several occasions he has seen excellent effects from its use; and Dr. Dewees § adds his testimony to its efficacy. He considers that, from its possessing no general stimulating property, it becomes very valuable, in cases of great irritability of the system, or where there may be slight febrile paroxysms. He adds that he has been in the habit of using it near the period at which the menses should appear, and that sometimes it succeeds most promptly; indeed, this is the only time at which it seems to Dr. Dewees to be successful; for if it then fails, he continues, it is rarely more fortunate afterwards. He advises a decoction (ʒj., Boiling Water Oj., Cloves ℈j.) to be gently simmered over the fire for fifteen minutes, to be strained, and given in doses of f ʒiss. every three hours.

2389. RUMEX ACETOSA. Common Sorrel. *Nat. Ord.* Polygonaceæ. *Linn. Syst.* Hexandria Trigynia.

Med. Prop. and Action. The leaves (*off.*) are refrigerant and diuretic, and form an agreeable drink *in fevers.* It has also been used with success in *Scurvy.* Magendie‖ observes, that where large quantities have been employed as food, the Oxalic Acid which they contain passes through the kidneys, and frequently gives rise to mulberry calculus.

2390. RUMEX AQUATICUS, seu HYDROLAPATHUM. Water Dock: has long been esteemed in *Scurvy.* It is highly spoken of by Linnæus.¶ *In Syphilis and Syphilitic Affections*, it is used in America as an efficient substitute for Sarsaparilla.

* Dublin Hosp. Gaz., Nov. 15, 1857.

† Med. Commentaries, vol. vii. p. 217.

‡ Obstetric Medicine, p. 233.

§ Dis. of Females, pp. 112, 122.

‖ Recherches sur les Causes de la Gravelle, pp. 39—126.

¶ Correspondence of Linnæus, vol. ii. p. 476.

It may be given in conjunction with Iodine or Mercury. Dose of the decoction (oz. j. of the root, Water Oj.), fl. drm. j.—fl. drs. ij., thrice daily. It is also stated to cure the most inveterate forms of *Scabies* as quickly as Sulphur.*

2391. RUMEX OBTUSIFOLIUS. Blunt-leaved Dock: is stated by Dr. A. T. Thompson† to be very efficacious in *Ichthyosis*. He advises a decoction (ʒj. of the root, Water Oj.). A dose of fʒij. purges freely, at the same time that it improves the tone of the stomach.

2392. RUTA GRAVEOLENS. Common or Garden Rue. *Nat. Ord.* Rutaceæ. *Linn. Syst.* Decandria Monogynia. *Hab.* Southern Europe, &c. Cultivated in England.

Med. Prop. and Action. The leaves are stimulant, narcotic, and irritant. They contain a volatile oil (Oleum Rutæ), which renders them so acrid, that when they are rubbed on the skin, they cause great irritation and inflammation. Internally, they may be given in infusion, or the oil may be substituted. From the experiments of Dr. Helie,‡ Rue appears to exercise a direct influence on the uterus, independent of its irritant and narcotic effects on other parts of the body; and also to have a remarkable power of diminishing the activity of the heart and arterial system, the pulse, in one instance, falling thirty beats in a minute. The belief in its emmenagogue properties is very ancient, being mentioned by Hippocrates. At the present day it is regarded among Oriental nations as prejudicial to the fœtus if given to pregnant women; and, in England, it is still occasionally used with a view to produce abortion. It is highly esteemed by the native doctors of India, who use the bruised leaves as a rubefacient in *Paralysis*, diffuse their vapour through an apartment in cases of *Catarrh*, and give them internally in atonic *Dyspepsia*.§

Offic. Prep. Oleum Rutæ (the Oil distilled in England from the fresh leaves and unripe fruit). Dose, ɱij.—ɱv. on sugar.

Dose of the powdered leaves, gr. x.—gr. xxx., twice or thrice a day.

2393. *Therapeutic Uses. In Amenorrhœa, Chlorosis, and other Uterine Affections*, Rue has been held in high esteem for many centuries; but its efficacy is very doubtful. It is generally prescribed with other emmenagogues; and how far Rue contributes to effect a cure is uncertain.

2394. *In Convulsions of Children arising from Flatulence and other Intestinal Irritations*, Dr. A. T. Thompson ‖ states that he has found a strong infusion of Rue, as an enema, of very great service. From the acrid quality of the leaves, it requires to be used with caution.

2395. *In Hysteria and Flatulent Colic*, the volatile oil (ɱij.—v. on Sugar), or an infusion of Rue, is a popular and efficacious remedy.

2396. *Against Worms*, the expressed juice of the herb, in doses

* Ranking's Half-Yearly Abs., vol. ix. p. 265.
† Dispensatory, p. 710.
‡ Med.-Chir. Rev., vol. lviii. p. 604.
§ Ainslie, op. cit., p. 38.
‖ Dispensatory, p. 712.

of a teaspoonful for children of three years and upwards, has been deemed efficacious.

2397. Sabadilla, seu Cebadilla. Cevadilla. The dried fruit of Asagræa Officinalis. *Nat. Ord.* Melanthaceæ. *Linn. Syst.* Hexandria Trigynia. *Source*, South America. Imported from Vera Cruz and Mexico.

Med. Prop. and Action. Powerfully acrid and poisonous, in consequence of the presence of Veratria, which, in the Cevadilla fruit, appears to be combined with Gallic Acid. Cevadilla also contains another principle, *Sabadillina*, which differs from Veratria in being insoluble in ether, and, according to Dr. Turnbull, is inferior to it in activity.* Cevadilla is rarely employed, on account of its activity and uncertainty. It is used in Germany as a means of destroying lice; hence the common name, lice-seeds. But, even applied externally, it is not free from danger. Its effects are very similar to those of Veratria.

Offic. Prep. Veratria. (See Veratria.)

Dose of the dried fruit in powder, gr. ij.—gr. viij.; of the Alcoholic Extract, obtained by evaporating a saturated tincture, gr. ¼, gradually increased.

2398. *Therapeutic Uses. Against Tænia, or Tape-worm*, Schmucker† speaks of Sabadilla as an almost infallible remedy. More recently, it has been recommended by M. Cazin,‡ who employed it with success in cases in which ordinary anthelmintics had but little effect: he always commences with very small doses, in order to ascertain how far it will be borne by the digestive organs. For children, he begins with from gr. iss. to gr. iv.—v. of the powdered seeds, mixed with Syrup of Rhubarb; for adults, gr. viij.—ix., with Sugar and a few drops of Ol. Fœnic. These doses are to be repeated daily for four days, after which the infusion of Chamomile is to be given.

2399. *In Rheumatism and Neuralgia*, Dr. Turnbull§ employs the Extract, in doses of gr. ¼, and applies the Tincture externally to the painful part as a rubefacient.

2400. *In Palpitations of the Heart*, when purely nervous, Dr. Turnbull derived much benefit from rubbing the Tincture over the region of the heart.

Sabina. See Juniperus Sabina.

Oleum Sabinæ. See Juniperus Sabina.

2401. Saccharum Album. Refined or White Sugar. $C_{12}H_{11}O_{11}$. The crystallized refined juice of the Stem of Saccharum Officinarum. *Nat. Ord.* Graminaceæ. *Linn. Syst.* Triandria Digynia. Cultivated in the West Indies and other tropical countries.

Saccharum Commune. Brown Sugar.

* Pereira's Mat. Med., vol. ii. pt. i. p. 175.

† Journ. de Petersbourg, vol. v.

‡ Dub. Quart. Journ., May 1850.

§ On the Med. Prop. of Ranunculaceæ, p. 7.

THERIACA. Treacle or Molasses. The uncrystallized Residue of the refining of Sugar.

Med. Prop. and Action. These three articles, the products of Saccharum Officinarum, are of great importance in medicine, pharmacy, and domestic life. The following are some of their medicinal uses:—*In poisoning by the Salts of Copper, Mercury, Silver, Gold, Lead, and Arsenic*, Sugar proves useful, partly, according to Orfila,* by acting chemically, and partly by increasing the peristaltic motions of the bowels. Dr. Pereira† regards it solely as a mechanical antidote. 2. *In Burns*, Dr. Payne,‡ of Nottingham, states, that he has employed Treacle for above twenty years, and with great success. It is applied pure to the injured surface, and at the natural temperature, folds of well-aired linen being laid over it, and the dressing allowed to remain on for three or four hours at first; the dressings subsequently require to be removed once or twice daily. Dr. Payne considers it the best application we possess; and adds, that it acts by effectually excluding the air, and by abstracting the morbid heat of the part, thus proving at once sedative, refrigerant, and healing. 3. *In the stings of wasps*, it is a common practice with the labourers at sugar manufactories in the East, to apply immediately a little Brown Sugar to the spot. It is stated to afford almost immediate relief. 4. *To exuberant granulations and indolent ulcers*, a little finely-powdered White Sugar, sprinkled over the surface, is occasionally used with advantage, but it causes much irritation. In pharmacy it is used in the preparation of syrups, confections, and as a medium for administering the volatile oils, and of disguising the taste of nauseous medicines. 5. *As an article of diet in Diabetes Mellitus*, Sugar has been advised by Dr. W. Budd,§ who furnishes a case illustrative of the benefit to be derived from it; but it signally failed in the hands of Drs. Williams, Burd, and Bence Jones.‖ 6. Drs. Behrend and Sieber¶ recommend Sugar as of great value in *Diarrhœa and other affections of children*, and they relate two cases of diarrhœa in which ʒss. of powdered White Sugar given every hour soon gave a favourable turn to the symptoms, which had long resisted all the ordinary means of cure. In some cases when there is evident a putrefactive tendency in the alvine secretions, it promises to be a remedy of great value.

Offic. Prep. Syrupus (Refined Sugar lbs. v.; Distilled Water Oij. The sp. gr. should be 1·330). Dose, *ad lib.*

2402. SACCHARUM LACTIS. Sugar of Milk. $C_{24}H_{24}O_{24}$. Crystallized Sugar obtained from the whey of Cow's Milk by evaporation.

Med. Prop. and Action. It is chiefly used as a vehicle for medicinal powders. Dr. Garrod** observes, that "probably milk sugar might be advantageously employed as a substitute for cane sugar in the diet of infants. Cow's milk diluted with water, with the addition of milk sugar, forms a good substitute for the milk of the human female."

Dose, ad lib.

2403. SAGAPENUM. The Gum-resin of an unknown species of Ferula (F. Persica, Willd.). *Nat. Ord.* Umbelliferæ. *Source*, the Levant; supposed to be a product of Persia.

Med. Prop. and Action. Anti-spasmodic and emmenagogue. It is best

* Traité des Poisons, &c., t. i. p. 281.
† Mat. Med., vol. ii. p. 1023.
‡ Med. Times, vol. xvi. p. 475.
§ British Med. Journ., Nov. 14 and Dec. 19, 1857.
‖ Ranking's Abstract, 1858, vol. xxvii. p. 110.
¶ Ibid., p. 357.
** Ess. Mat. Med. and Therap., p. 323.

given thus :—℞ Sagapeni G. oz. j. ; Aloes gr. xxx. ; Syr Zingib. q. s. ft. mas. Dose, gr. v.—gr. xx. Externally applied, it is discutient.

Dose of Sagapenum, gr. v.—gr. xxx.

Therapeutic Uses. Similar to Assafœtida ; but it is less powerful and certain in its operation than that drug, for which it may, however, be substituted.

2404. SALICINE. A crystalline principle obtained from several species of Salix and Populus. $C_{26}H_{18}O_{14}$.

Mel. Prop. and Action. Tonic and anti-periodic. Its properties much resemble those of Quinine, for which it may be substituted when there is tendency to cerebral complications, or irritability of the stomach, or when Quinine is scarce. It is best given in powder with sugar, or in some aromatic water. Salicine taken internally appears in the urine as Hydruret of Salicyle, and causes that fluid to strike purple-red with the per-salts of Iron (Garrod*).

Dose, gr. v.—gr. xxx.

2405. *Therapeutic Uses. In Intermittent and other Fevers*, it has been employed with advantage. Dr. Blom† states that he has given it extensively in *Intermittent, Worm, and Mucous Fevers, and in those arising from Dentition.* For the extinction of quotidian and tertian fevers, he administered it during the intermissions, at the rate of gr. xx. in four doses ; and in quartans, gr. xxx. in six doses. The last dose was given shortly before the expected paroxysm, which it was found in many cases to check altogether, or greatly to diminish its violence. He employed it chiefly when Quinine was contra-indicated, when the patient was plethoric, or when there was a tendency to vascular congestion of the head, and violent headache. In these cases he observed no unpleasant symptoms arise from its use, although given in doses of gr. vj.—viij. He ascribes the efficacy of Salicine to a peculiar operation on the mucous membranes, of which it elevates the tone, and it also improves the character of the secretions. Subsequent experience has shown, that though of great service occasionally, it is inferior to Quinine in uniformity of action. Many instances of its efficacy are recorded by Prof. Pleischl, of Prague.‡

2406. *In Remittent Fevers*, Dr. Blom advises Salicine to be administered during the remission, especially in patients of a phlegmatic temperament and feeble digestion. *In Hectic Fever*, he also found it useful in diminishing, in a marked manner, the profuseness of the perspirations.

2407. SALICIS CORTEX. The bark of various species of Willow. Of these, the Salix Russelliana, Bedford Willow, the

* Op. cit., p. 282.
† Edin. Med. Surg. Journ., Oct. 1, 1837.
‡ Brit. For. Med. Rev., April 1836.

Salix Alba or Common White Willow, and Salix Caprea or the Great Round-leaved Willow, are the most esteemed. *Nat. Ord.* Salicaceæ. *Source,* Northern Europe and United States.

Med. Prop. and Action. Tonic, astringent, and febrifuge. It is best administered in infusion (oz. j. ad Aq. Oj.), in doses of fl. oz. j.—fl. oz. iij. It has been employed in *Intermittent and in Neuralgic and Dyspeptic cases,* but is now rarely used. Whatever benefit is to be derived from it may be more conveniently obtained from its active principle, *Salicine* (see that article). *In simple debility* it proves highly useful. Its astringency depends upon the presence of a small proportion of Tannin. The decoction has been sometimes found of use in chronic skin affections, as *Psoriasis.**

Dose of the powdered bark, gr. xxx.—gr. lx.

2408. SAMBUCUS NIGRA. Common Elder. *Nat. Ord.* Caprifoliaceæ. *Linn. Syst.* Pentandria Trigynia. *Hab.* Northern Europe and the United States. A species, S. Adnata, is found in the Himalayas.

Med. Prop. and Action. The berries and the inner bark are hydragogue cathartic, and, in large doses, emetic. The recent flowers are officinal, and are employed in the form of ointment, or they may be used for fomentations. Their action is gently stimulant. The distilled water is used for flavouring medicines, &c.

Offic. Prep. Aqua Sambuci (Fresh Elder Flowers lbs. x. ; Water Cij. ; Distil Cj.). Dose, fl. oz. j.—fl. oz. ij.

Dose of Elder bark, gr. x.—gr. xxx. ; of a decoction of the bark (oz. j., Water Oij., boiled to Oj.), fl. oz. ij.—fl. oz. iij., three or four times daily.

2409. *Therapeutic Uses. In Dropsical Affections,* the juice of the inner bark has been advised by Sydenham, Boerhaave, Martin Solon, Copland, Delens, and others. The testimony in favour of its efficacy is very strong. More recently, the fresh juice of the root has been advised by Dr. René Vanoye† as a remedy of still greater power. The results of his trials with this plant are as follows:—1, it may be administered in all serous accumulations requiring the use of drastic purgatives ; 2, it acts with greater energy and rapidity than the most active purges ; 3, it should be uncombined with other remedies of the same class ; 4, the first doses should be pretty strong : if vomiting occurs, the medicine may be discontinued, or the dose diminished ; 5, it is rarely necessary to give more altogether than 120 or 150 grammes (ʒiij.—ʒiv.) by mouth, in spoonfuls ; 6, it occasionally cures dropsies, when all other remedies have failed ; 7, no serious dangers are connected with its employment. From the statements of various writers, it appears to be particularly serviceable in Dropsy connected with disease of the liver.

* Garrod, Ess. Mat. Med. and Therap., p. 282.

† Lond. Journ. of Med., April 1849.

2410. SANGUINARIA CANADENSIS. Blood Root. *Nat. Ord.* Papaveraceæ. *Linn. Syst.* Polyandria Monogynia. *Hab.* Canada and Northern States of America.

Med. Prop. and Action. The root is an acrid emetic with narcotic properties. It is a local irritant of considerable power, producing inflammation when kept in contact with the skin, exciting violent irritation when snuffed up the nostrils, and operating like a caustic upon fungous surfaces. Taken internally, in moderate doses it excites the stomach, increases somewhat the frequency of the pulse, and stimulates the secretions, especially that of the lungs, and, as some suppose, the hepatic also. More largely taken, it occasions nausea, reduces the force of the circulation and the frequency of the pulse. Eberle* considers its sedative influence on the heart and arteries to be quite as certain as that of Digitalis, if not more so; but this was rarely observable until the medicine had been regularly continued for periods varying from five to ten days. In a full dose it produces vomiting. In overdoses it acts as a poison, causing burning in the stomach, excessive thirst, violent vomiting, faintness, vertigo, dimness of vision, and great prostration (Woodt). Emmenagogue properties are also assigned to it. Its activity appears to depend upon a peculiar principle, *Sanguinarine.* The seeds and leaves are said to partake of the qualities of the root.

The *dose* of the powdered root as an emetic is gr. x.—xx. suspended in water; combined with Ipecacuanha, it is said to be a prompt and easy emetic for children and old persons. As a nauseant and stimulating expectorant, the dose is gr. j.—v.; as a diaphoretic and sedative, gr. j. every one or two hours. A compound Powder (Rad. Sang. Pulv. ℈ij., Opii Pulv. ℈j, Potass. Sulph. ʒij. ℈j., M.) is recommended by Dr. Gibb as the least irritating of all the preparations of Sanguinaria. Externally, it is used in the form of ointment (gr. lx. ad Ung. oz. j.). Many other formulæ are furnished by Dr. Gibb‡ in his excellent paper on this plant.

It is contra-indicated in all states of high general excitement, or in active local inflammations; in these states it cannot but prove injurious, for whatever may be its ulterior effects, it is always actively stimulant in its primary operation. (Dr. Francis.§)

2411. *Therapeutic Uses. In Diseases of the Lungs*, it appears to exercise a marked influence. *In Typhoid Pneumonia*, according to Dr. Ives,‖ when respiration is very difficult, the extremities livid, and the pulse full, soft, and compressible, it does more to obviate these symptoms and remove the disease than any other remedy. In such cases, he observes, the dose must be large in proportion to the violence of the disease, and be often repeated until it excites vomiting or relieves the symptoms. He likewise reports very favourably of its effects in *Phthisis, Hooping-Cough, Influenza, &c. In Protracted Catarrhal Affections assuming the character of incipient Phthisis*, the regular employment of small doses of this root in tincture has, in the practice of Eberle,¶ not unfrequently afforded complete relief. He regards it as undoubtedly one of the most valuable agents we possess in this class of cases; but in order to obtain its full effects, it requires to be persevered in for two or more weeks.

* Therapeutics, ii. p. 96.
† Therapeutics, ii. p. 440.
‡ British Med. Journ., Feb. 4 and 11, 1860.
§ New York Med. Phys. Journ., vol. i.
‖ Bigelow, Amer. Med. Bot., i. p. 81.
¶ Therapeutics, ii. p. 97.

Dr. Francis* relates a case of severe *Chronic Pneumonia* in which it proved of essential benefit. In *Asthma* and *Hydrothorax*, it has also been used with the best effects.

2412. *In Croup*, it was first proposed by Dr. Ives, and has since been advocated by Dr. Branch,† who, after many years' experience in its use, prefers it to any other single remedy. He considers that, by persisting in it till emesis is induced, it prevents the formation of the diphtheritic membrane. He advises ʒss. of the powdered root to be infused in a tea-cupful of boiling water, allowing it to steep for ten minutes over the fire, when it may be given in teaspoonful doses, frequently repeated till vomiting is induced. After which it is to be continued at intervals of one or two hours, as the symptoms require. If the skin is hot and dry, the addition of a few grains of Ipecacuanha is advised.

2413. *In Torpor of the Liver and Jaundice*, Sanguinaria has been used by Dr. Macbride with evident advantage. In these cases the powder (gr. ij.—v.) or infusion was found preferable to the Tincture. (Bigelow.) Dr. Mothershead‡ also speaks highly of its value as an excitant of the liver when given in alterative doses. *In Dyspepsia*, where stimulant tonics are indicated, the infusion in small doses (fʒj.—fʒiss.) is said to have proved effectual by many practitioners. (Bigelow.)

2414. *In Rheumatism*, it is likewise said to have proved signally beneficial. Dr. Francis§ mentions a "formidable case of acute Rheumatism" occurring in a person of gouty habit, in which a saturated tincture (fʒss. thrice daily) proved of the greatest advantage. According to Dr. J. Allen,‖ an infusion of the root powerfully promotes diaphoresis in inflammatory rheumatism.

2415. *Other Diseases. In the Sore Throat of Scarlatina*, Dr. Jennings¶ found an acetous infusion (Fresh root ʒss., Vinegar Oj.) more effectual as a gargle than any other application. *In Coryza*, the powdered root, conjoined with Cloves and Camphor, and employed as snuff, proved effectual as a sternutatory in the hands of Dr. Stevens.** As a means of curing *Soft Polypus of the Nose*, it has been used in the same manner, but with doubtful benefit. *To Foul and Ill-conditioned Ulcers*, the root, either in powder or ointment, proves a good stimulant application, best adapted for ulcers with callous edges and ichorous discharge. *In Ulceration of the Umbilicus*, Eberle†† found the powdered root an excellent escharotic. It formed one of the ingredients in the nostrum vaunted of late years by Dr. Fell for the cure of

* Op. cit.
† Porcher, Trans. of American Med. Association, ii. p. 691.
‡ Wood's Quarterly Abstr., ii. p. 80.
§ Op. cit.
‖ Quoted by Porcher, op. cit.
¶ Stethoscope, ii. p. 182.
** New York Journ. of Med. iv. N.S. p. 358.
†† Diseases of Children, p. 97.

Cancer; but as Chloride of Zinc formed another ingredient, it is manifest that Sanguinaria must have played a very subordinate part, if indeed it had any effect at all. The acetous infusion has been found of benefit as a local application in *Obstinate Skin Diseases.* *In Chlorosis*, it has been used with alleged success by Eberle; but as it was given conjoined with iron, any benefit observable was probably derived from the mineral.

SANTONICA. See ARTEMESIA SANTONICA (ARTEMESIA CONTRA).

2416. SANTONINUM. Santonin or Santonine. Santonina. $C_{30}H_{18}O_6$. A crystalline neutral principle obtained from Santonica. When pure, it occurs in brilliant, colourless, rhombic, flat prisms, inodorous, of a feeble bitterish taste, scarcely soluble in cold water, sparingly in boiling water, but abundantly in chloroform, boiling rectified spirit, and volatile and fixed oils. The crystals become yellow on exposure to light. On account of the difficulty of procuring it pure, M. Gaffard suggests its use in an impure state, designated Brown Santonin, which is almost equally efficacious and much cheaper than the pure article. It was first obtained by Köhler, of Dusseldorf, in 1830, but was not known in England as a vermifuge till 1844.* Four years subsequently, Mr. Spencer Wells† published a paper on its use, and since that time its reputation has gone on steadily increasing, until, by the general consent of most of those who have recorded their experience, it may be pronounced to be one of the most certain, and probably one of the safest anthelmintics we possess.

Med. Prop. and Action. Unless given in large doses, Santonin induces no marked physiological effects; but one which occasionally attends its use is very remarkable, viz., a yellow discoloration of the vision. M. Guépin‡ found that of one hundred persons three only exhibited no modification of vision; about fifty perceived objects yellow for a short time only, about an hour after taking the medicine; whilst in the remainder the vision was more decidedly yellow, which continued for a longer period. In one case this continued for twelve days after leaving off the Santonin. Where very large doses are taken, the yellow discoloration deepens to a red hue. The urine also assumes a peculiar yellow colour. Ill effects have occasionally, though rarely, resulted from its use. No case of death from its employment is recorded. One case indeed is mentioned,§ in which a child, in Belgium, died after taking Santonin, but it was proved that five-sixths of the fatal powders consisted of Strychnine.

The *dose* for children under four years is gr. ij.—iv., above twelve years gr. vj.—viij., with an equal quantity of white sugar or in syrup. The Brown Santonin is best given in M. Gaffard's lozenges, each of which contains gr. ½ of Santonin. One of these is the dose for an infant of six months old; for older children, the dose is proportionately larger.‖

* Lancet, May 11, 1844, p. 226.
† Med. Gaz., July 16, 1848, p. 1035.
‡ Bull. de Thérap., lviii. p. 500.
§ Med. Times and Gaz., Nov. 26, 1859, p. 553.
‖ Ann. de Thérap., 1850, p. 82.

2417. *Therapeutic Uses. In cases of Ascarides Lumbricoides*, Santonin is invaluable. Its efficacy has been attested by all who have recorded their experience in its use. My own experience with it, which has been very extensive, has been most satisfactory. Kuchenmeister* states that the worm perishes more rapidly and certainly in an oleaginous solution of Santonin than in any other vehicle; hence he directs it to be given in Castor Oil. Dr. Brisbane† employed this formula with the best effects, but Dr. Chipperfield‡ did not find it, when thus exhibited, more effectual than when given rubbed up with about thrice its weight of sugar. In many cases no aperient is needed, one or two stools succeeding its exhibition containing the worms, if any were present; still it is the safer plan to administer an aperient a few hours after the last dose of Santonin. Dr. Chipperfield advises an interval of six or eight hours between any two doses of the medicine, and not to administer more than three doses in succession, allowing a space of three or four days to elapse before employing the medicine again. In this opinion I perfectly coincide. In cases of *Ascarides Vermiculares* (Thread Worm) its effects are often very striking, though it does not exercise a curative power without the aid of constitutional treatment by Salts of Iron, &c.

2418. *In Chorea, Epilepsy, Hysteria*, and *in many Nervous and Convulsive Affections in Women and Children*, Santonin has very frequently, in my practice, disclosed the unsuspected cause of the affection, viz., worms; and the cause being removed by the medicine, the effect has ceased. As an aid to diagnosis in doubtful and anomalous cases, it is of great value. Bouchardat§ considers that it possesses incontestable efficacy as an anti-periodic in *Intermittent Fevers*, when given in doses of gr. iv.—v. daily. No other testimony in its favour in this character is recorded.

2419. *In Diseases of the Eye*, the peculiar effect which Santonin exerts on the coloration of vision (termed Chromatopsy) led M. Martini‖ to employ it in *Amaurosis*, and the results obtained were so satisfactory that M. Guépin¶ was induced to extend its use to other eye diseases; and he concludes that Santonin given to the extent of gr. xxx. divided into ten doses, taken in a period of five days, produces good effects in the latter stages of *Iritis*, *Irido-Choroiditis*, and *Choroiditis* with plastic exudation, when the inflammatory condition no longer persists. In other diseases of the eye, the results were either negative, trifling, or mischievous. Its use may often be advantageously

* Archiv. Gén. de Méd., 4th series, xxix. p. 206.
† Med. Times, June 9, 1860, p. 589.
‡ Madras Quart. Med. Journ., Jan. 1861, p. 78.
§ Ann. de Thérap., 1851, p. 147.
‖ Comptes Rendus, March 1860.
¶ Op. cit. and Med. Times and Gaz., Sept. 1, 1860, p. 219.

combined with Atropine and other medicines, as may be required.

2420. SAPO DURUS. Hard Soap. A combination of Olive Oil with Soda. Composed of Oleate and Margarate of Soda.

SAPO MOLLIS. Soft Soap. A combination of Olive Oil and Potash. Composed of Oleate and Margarate of Potash.

Med. Prop. and Action. Soap, in its operation, is very similar to the alkalies generally, but milder. It is rarely administered singly, as an internal remedy, as the liberation of the fatty acids entering into its composition renders it objectionable, but it is often advantageously combined with Rhubarb, Aloes, Extract of Jalap, and other purgatives, the operation of which it renders more speedy and mild. It is also a common constituent of suppositories (Pilula Opii), rendering them more soluble and efficient. Externally, it enters into a variety of liniments, embrocations, &c., and proves useful in some cutaneous diseases. The Linimentum Saponis is a particularly useful formula.

Offic. Prep. of Sapo Durus. 1. Emplastrum Saponis (Hard Soap in powder oz. vj.; Litharge Plaster lbs. ij.½; Powdered Resin oz. j. To the Litharge Plaster melted by a gentle heat, add the Soap and Resin first liquefied; then constantly stirring, evaporate to a proper consistence).

2. Linimentum Opii. (See OPIUM).

3. Linimentum Saponis (Opodeldoc) (Hard Soap oz. iiss.; Camphor oz. j.½; English Oil of Rosemary fl. drs. iij.; Rectified Spirit fl. oz. xviij.; Distilled Water fl. oz. ij. Mix the Water with the Spirit, and add the Oil of Rosemary, the Soap, and the Camphor. Digest at a temperature not exceeding 70°, with occasional agitation until all are dissolved).

Hard Soap also enters into the composition of many of the Officinal Pill masses.

Incompatibles. Acids; Acidulous Salts; Alum; Nitrate of Silver; Calomel; Corrosive Sublimate; the Sulphates; and all astringent vegetable solutions.

2421. *Therapeutic Uses. In Poisoning by the strong Mineral Acids*, Soap is an efficacious antidote; and its being generally at hand renders it doubly valuable. It cannot be used too soon, and must be given in strong solution, of which a tea-cupful should be drunk at short intervals. *Burns with the strong Acids, or with Phosphorus*, should be bathed with a solution of Soap.

2422. *Dyspepsia attended with Acidity of the Primæ Viæ* is often benefited by the internal use of Soap, in combination with Rhubarb and an essential oil. *In Pyrosis*, Dr. Mason Good speaks highly of the value of Soap, either alone or with Opium.

2423. *Habitual Constipation*, when the fæces have become hardened and impacted, is often relieved, if not altogether removed, by an enema of a strong solution of Soap.

2424. *In Calculous Diseases, in the Uric or Lithic Acid Diathesis*, the internal use of Soap, either alone or with Lime-water, often affords great temporary relief, correcting any abnormal acidity.

2425. *In Obesity*, Soap, in doses of gr. x.—xx. daily, was strongly advised by Dr. Flemyng.* He stated that it is a valuable adjunct to active exercise and low diet, and that it was found particularly useful in obesity connected with Gout.

2426. *In Tinea Capitis, and many Cutaneous Diseases*, the daily application of Soft Soap and warm water contributes materially to a speedy cure. Dr. Neligan, however, objects to it in diseases of the scalp.

2427. *In Syphilitic Eruptions*, Dr. Fricke observes that Soap-baths (in the proportion of a pound of yellow Soap to each bath) always constituted the first step in the treatment in every form of eruption. In all instances they excited, in the commencement at least, a favourable influence; and they were found sufficient, in many cases, to effect a cure without any other remedy. Some forms required from six to eight, and others from twelve to sixteen, baths, to effect a cure. (Dr. Graves.†)

2428. *To Abscesses*, to hasten the suppurative process, a popular sailor's application is a plaster, composed of equal parts of common yellow Soap and brown Sugar, beaten together into a paste, spread on a bit of linen, and placed over the part. I have used it myself, and seen others use it in a great number of cases; it greatly eases the pain, and appears to hasten the suppurative process more than any other application. Its simplicity is a great recommendation to its use.

2429. *In Sprains, Bruises, Chronic Rheumatism, &c.*, the Soap Liniment (*ut supra*), diligently rubbed in for fifteen or twenty minutes, two or three times a day, affords great relief. A portion of T. Opii (fl. drm. j. ad fl. oz. j.) may be advantageously added.

2430. SAROTHAMNUS SCOPARIUS. Spartium Scoparium, *Linn.* Cytisus Scoparius. Common Broom. *Nat. Ord.* Papilionaceæ. *Linn. Syst.* Diadelphia Decandria. *Hab.* Europe.

Med. Prop. and Action. The fresh and dried tops (*off.*), as well as all the other parts of the plant, are diuretic. In large quantities it is cathartic, and occasionally emetic. Broom tops contain a neutral principle, *Scoparine*, and a liquid alkaloid, *Sparteine*, together with extractive matters and salts. Dr. Garrod observes that the diuretic effects of Broom are probably due to one of the above principles, as the alkaline salts contained in the tops are not in sufficient quantity to account for its effects.

Offic. Prep. of Broom (Scoparius). 1. Decoctum Scoparii (Broom tops dried oz. ss.; Distilled Water Oss. Boil for ten minutes and strain: the product should measure about fl. oz. viij.). Dose, fl. oz. j.—fl. oz. iij.

2. Succus Scoparii (the juice expressed from the fresh tops 3 measures; Rectified Spirit 1 measure. Set aside for seven days and filter). It should be kept in a cool place. Dose, fl. drm. j.—fl. oz. ss.

Dose of the dried tops, gr. xx.—gr. xxx. They are best given in decoction.

2431. *Therapeutic Uses. In Dropsy and Dropsical Affections*,

* On Corpulency, Lond. 1780. † Clin. Lect., vol. ii. p. 427.

the common Broom was held in high esteem by Sydenham, Mead, and Cullen. More recently, it has been employed by Dr. Darwell,* who states that he can bear witness to its excellent effects, often removing the effusion, when other remedies fail; he adds that it acts powerfully on the kidneys, and usually affords relief in a few days. The late Dr. R. Pearson† was a great advocate for this remedy. He recommends that the seeds should be substituted for the leaves, tops, and roots, which are the parts usually employed. He states that they are powerfully diuretic, and produce their effect without weakening the patient. He recommends the following Tincture:—℞ Broom Seeds ʒij., Proof Spirit fʒviij.; macerate for ten days. Dose, fʒj.—fʒij., thrice daily. If it produce diarrhœa, five or six drops of T. Opii may be added. If much debility be present, it may be combined with Iron or Quinine. He found it eminently serviceable in all dropsies, excepting ovarian and hydrothorax. Dropsics depending on cardiac disease are especially benefited by Broom tops.

2432. SARRACENIA PURPUREA. Purple Pitcher Plant. *Nat. Ord.* Sarracenidæ. *Linn. Syst.* Polyandria Monogynia. *Hab.* Canada and North America.

Med. Prop. and Action. This plant has of late attracted much notice for its alleged powers both as a curative and as a prophylactic agent in *Small Pox*, in which character it has long been held in high esteem amongst the North American Indians. A virulent epidemic of small-pox which ravaged the neighbourhood of Halifax in 1860 having been, it was reported, arrested by the use of a secret remedy in possession of an old Indian woman, inquiries were instituted, which resulted in discovering the alleged remedy to be the root of this plant. It was soon afterwards made the subject of a communication by Dr. H. Miles,‡ of the Royal Artillery, to the London Epidemiological Society, from which the following observations are quoted:—1. In the case of an individual suspected to be attacked by small-pox, but with no distinct eruption upon him, a large wine-glassful of the root of this plant has the effect of bringing out the eruption. After a second or third dose, at intervals of from four to six hours, the pustules subside, apparently losing their vitality. The patient feels better, and, in the graphic expression of the 'Micmac,' "he knows that there is a great change in him at once." 2. In a subject already covered with the eruption in the early stage, a dose or two will dissipate the pustules and subdue the febrile symptoms. The urine, from being scanty and high-coloured, becomes pale and abundant, whilst from the first dose the feelings of the patient assure him that "the medicine is killing the disease." Under the influence of the remedy, in periods varying from three to four days, the prominent symptoms subside, although, as a precautionary measure, the patient is kept in camp until the ninth day. No marks of the eruption (as regards pitting, &c.) have been observed in cases examined after treatment by this remedy. 3. With regard to its prophylactic power (fully believed in by the Indians), it is curious to note that, in the camps where the remedy has been used, the people keep a weak infusion of the plant prepared, and take a dose occasionally during the day, so as to "keep the antidote in the blood." Subsequent observation, however, has by no means confirmed the expectations which the first trial of Sarracenia raised. Mr. J. F. Marson,§ Surgeon to the

* Cyc. Pract. Med., vol. i. p. 166.
† Obs. on Broom Seeds in Tropical Affections, Lond. 1835.
‡ Med. Times and Gaz., Nov. 23, 186[illegible].
‖ Lancet, July 4, 1864.

London Small Pox Hospital, gave the medicine a fair trial in that institution. It neither modified the eruption nor did it save life. He records fifteen cases which ended fatally, although treated by Sarracenia. A committee, also, appointed by the New York Medical Society to investigate its merits, came to the conclusion, "That the reliable recorded experience appears to preponderate against the remedial efficacy of this plant in those forms of the disease (Small Pox) which do not generally recover under the administration of ordinary remedies."* Two cases in which it *seemed* to do good are recorded by Dr. W. H. Grant.†

2433. Sarsa. Sarsaparilla. The Root of Smilax Officinalis, and other species of Smilax. *Nat. Ord.* Smilaceæ. *Linn. Syst.* Diœcia Hexandria. It is imported chiefly from South America, Mexico, and the West Indian Islands; that from Jamaica is generally the most highly esteemed, and is the only variety of Sarsaparilla officinal in the British Pharmacopœia. A most complete account of the various species is given by Dr. Pereira, in his valuable work on Materia Medica, to which the reader is referred (vol. ii. pt. i. p. 270, et seq.). Dr. Hancock considers that its taste is the best criterion of its goodness; the more acrid and nauseous the taste, the better the quality.

Med. Prop. and Action. Alterative and diaphoretic. It is best administered in simple or compound decoction. Some practitioners doubt the medicinal properties of Sarsaparilla altogether, but the weight of evidence is decidedly in favour of its therapeutic value; and this view is supported by chemical analysis, *Smilacin*, a peculiar principle yielded by it, being shown to produce, in a concentrated degree, some of the effects which have been ascribed to the drug in its crude state; thus, in small doses, it causes nausea and diaphoresis, and in larger ones it exercises a sedative action on the heart and arterial system. (See Smilacin.) In common with other alteratives, its effects are not very obvious, and its *modus operandi* is as yet obscure As an alterative, it is particularly serviceable in cachectic states produced by Syphilis, or by long-continued courses of Mercury. The above remarks apply, not only to the ordinary Sarsaparilla (*Smilax Sarsaparilla*), but to the other species which are occasionally employed. The Italian Sarsaparilla (*S. Aspera*) is a remedy of ancient repute, and the *S. Syphilitica* appears to exercise a powerful influence in constitutional Syphilis; but of all the species, I have derived most unequivocal benefit from the China Sarsaparilla (*S. Chinensis*). I have employed this, and a closely allied species, possessing all the same external characters, which is indigenous in the Tenasserim Provinces, in a great number of cases, particularly in cutaneous affections Under its use, the appetite improves, the general system becomes invigorated, and the patient gains health; any cutaneous eruption rapidly disappearing. I have always used it uncombined with other remedies, and in the same proportions as S. Sarsaparilla. It may be obtained in any quantity from Penang and Singapore, and is well worthy of being introduced into British practice. The only sensible effect I have observed under its use is an increased secretion of urine. The fresher the root, the more evident is its influence.

Offic. Prep. 1. Decoctum Sarsæ (Jamaica Sarsaparilla, not split, oz. iiss.; Boiling Distilled Water Oiss. Digest the Sarsaparilla in the Water for an hour; boil for ten minutes in a covered vessel; cool and strain. The product should measure Oj.). Dose, fl. oz. ij.—fl. oz. iv.

* Med. Times and Gaz., Jan. 30, 1864.

† Lancet, Feb. 6, 1864.

2. Decoctum Sarsæ Compositum (Jamaica Sarsaparilla, not split, oz. iiss. : Sassafras in chips oz. ½ ; Guiac Wood turnings oz. ½ : Fresh Liquorice Root, bruised, oz. ½ ; Mezereon gr. lx. ; Boiling Distilled Water Oiss. Digest all the ingredients in the Water for an hour ; boil for ten minutes in a covered vessel ; cool and strain. The product should measure Oj.). Dose, fl. oz. ij.—fl. oz. iv.

3. Extractum Sarsæ Liquidum (Jamaica Sarsaparilla, not split, lb. j. ; Distilled Water at 160° Oxiv. ; Rectified Spirit fl. oz. j. Macerate the Sarsaparilla in one-half of the Water for six hours, and decant the liquor. Digest the residue in the remainder of the Water for the same time. Express and filter the mixed liquors, and evaporate them by a water bath to fl. oz. vij., or until the sp. gr. of the liquid is 1·13. When cool, add the Spirit. The sp. gr. should be about 1·095). Dose, fl. drm. ss.—fl. dra. iv.

Dose of the powdered root, gr. xxx.—gr. lx.

2434. *Therapeutic Uses. In Syphilis*, Sarsaparilla was formerly esteemed a specific ; but the trials of it by Mr. Pearson* pointed out the fallacy of the opinion. In constitutional Syphilis, however, particularly when repeated courses of Mercury have been taken for the cure of the disease, he speaks favourably of it. It is supposed to act chiefly by inducing a healthy tone of the biliary and digestive organs. It may be given to the extent of Oj. of the decoction, or more, daily, and may be advantageously combined with Nitric Acid (Acid. Nit. Dil. ɱx. ad Decoct. Sarsæ Co. fl. oz. ij.), or with the Iodide of Potassium. The former, when the system is much debilitated, and there is general cachexia ; the latter, when the osseous system is principally affected. *In Syphilitic Sore Throat, with Phagedæna*, the combination with the acid proves the most useful. Opium may, at the same time, be given in liberal doses.

2435. *In Mortification or Gangrene of the Extremities in old Persons*, the decoction (*supra*) is frequently more easily borne, and is productive of equal, if not more benefit than Cinchona or its salts. It is best given with dilute Nitric Acid (ɱx. ad Decoct. fl. oz. iij.), three or four times daily. The adjuncts required are a generous diet, great cleanliness, Charcoal poultices, and Dover's Powder (gr. x.), or Opium (gr. j.—ij.), at night.

2436. *In Chronic Affections of the Liver*, Sarsaparilla is highly spoken of by Dr. Wilson Philip.† He considers that it is chiefly serviceable where the languor of the secreting vessels has become permanent. Dr. Venables‡ also speaks favourably of it, and affirms that, in these cases, it certainly possesses considerable power as a restorative ; and that it will be found eminently serviceable in fortifying the system, and in preparing it for more active remedies. The compound decoction is the best form for administration.

2437. *In Chronic Rheumatism consequent on Syphilis, or attended with much debility*, the compound decoction (*supra*) proves

* On various Articles of Mat. Med., p. 24.

† On Indigestion, p. 203.

‡ Cyc. Pract. Med., vol. iv. p. 616.

highly serviceable. It may be combined with Nitric Acid, the Iodide of Potassium, or opiates. I have seen great benefit from this treatment, but how far it is due to the Sarsaparilla must remain doubtful.

2438. *In Chronic Coughs* occurring in debilitated constitutions, attended with redness and relaxation of the mucous membrane of the fauces, and elongation of the uvula, Prof. Graves* speaks highly of the following formula:—℞ Decoct. Sarsæ Oj., Acid. Nit. Dil. fʒj., M. sumat. tertiam part. ter in die. He states that it improves the general tone of the system, and that the cough will generally subside under its use. In some cases it is necessary to apply solutions of the Argent. Nit. or Cupri Sulph. to the tonsils; and the patient should take nutritious diet and daily exercise. It will be found particularly useful when Syphilis, or a long mercurial course, has been the cause of the debility; but its utility is by no means confined to these cases.

2439. *In Chronic Diseases of the Skin*, the compound decoction or extract may be given with evident advantage, particularly when they are of syphilitic origin, or when the digestive organs are evidently deranged. Local applications should not be neglected at the same time.

2440. *In Scrofula*, Sarsaparilla has been advised, but its efficacy, beyond that of an alterative, appears very doubtful.

2441. SASSAFRAS. The Dried Root of Sassafras Officinale. *Nat. Ord.* Lauraceæ. *Linn. Syst.* Enneandria Monogynia. *Source*, North America.

Med. Prop. and Action. Diaphoretic, stimulant, and alterative. Its activity depends upon a volatile oil, which is dissipated by boiling; it is, consequently, best given in infusion (oz. j. ad Aq. Oj.). The volatile oil is the best form for internal use. It is rarely used alone, but chiefly in combination with Sarsaparilla or Guaiacum. It is inadmissible in all sthenic inflammatory states. It contains about nine per cent. of a peculiar principle, *Sassafrin*, and five per cent. of Tannin.

Offic. Prep. Decoctum Sarsæ Compositum. (See SARSA.)

Dose of Oil of Sassafras (Oleum Sassafras), ♏ij.—♏vj.

2442. *Therapeutic Uses. In Chronic Rheumatism, Syphilis, Scurvy, and in Cutaneous Affections*, it has been employed; but its utility is very doubtful. It is rarely given alone, but in combination with powerful diaphoretics, Guaiacum, &c.

2443. SCAMMONIUM. Scammony. A Gum-resin, obtained by incision from the living root of Convolvulus Scammonia. *Nat. Ord.* Convolvulaceæ. *Linn. Syst.* Pentandria Monogynia. *Hab.* Syria. Chiefly exported from Smyrna. Of the two kinds met with in commerce, that called Virgin or Aleppo Scammony is the best.

* Clin. Lect., vol. ii. p. 32.

SCAMMONIÆ RADIX. The Dried Root of Convolvulus Scammonia.

SCAMMONIÆ RESINA. Resin of Scammony. Obtained by means of Rectified Spirit from Scammony Root, or from Scammony.

Med. Prop. and Action. Drastic purgative, particularly adapted for persons of a phlegmatic temperament, and for cases of constipation depending upon torpor of the colon. M. Rayer,* with the view of testing the value of Scammony, administered it in 210 cases, and the following are the results of his observations:—1. The Scammony of Aleppo, in doses of gr. xviij., usually occasions three or four motions; if administered in gr. xxvij. doses, its action is seldom equal to, and sometimes weaker than, that resulting from the smaller dose of the medicine. 2. The addition of acids or alkaline fluids to Scammony does not increase or diminish its power in any evident manner. 3. The Resin of Scammony, in doses of gr. ix., produces a purgative action equal to that occasioned by gr. xviij. of common Scammony. 4. The Resin is to be preferred, as it acts with certainty and uniformity, and the Scammony of commerce is always more or less impure. Scammony occasionally causes severe griping; but this may in a great measure be obviated by reducing it to a very fine powder, and giving it in conjunction with the Sulphate of Potash. The operation of Scammony, observes Dr. Nevins,† is chiefly irritant, and affects the whole of the bowels; on this account, it acts most efficiently when there is a deficiency of intestinal mucus, indicated by hard dry fæcal evacuations, in which case, however, it is very liable to gripe, an effect which may be diminished by the means described above. When there is copious mucous secretion, it has less efficacy, and is, therefore, not so well adapted as a purgative to remove intestinal worms as Gamboge or Colocynth. It is stated by Dr. Christison never to become poisonous in an over-dose. Pulvis Scammonii Co. is a good form for internal use, and is particularly adapted for children.

Offic. Prep. Of Scammony Root:—

Resina Scammoniæ (Scammony Root in coarse powder oz. viij.; Rectified Spirit q. s.; Distilled Water q. s. Prepared by exhausting the Scammony Root by maceration and percolation with the Spirit. The Tincture thus obtained is to be diluted with fl. oz. iv. of Water, and the Spirit distilled off by a water bath. The residue is allowed to cool, and, the supernatant fluid having been poured off, the Resin is washed two or three times with water, and dried on a porcelain plate by a stove or water bath). Dose of the Resin, gr. iv.—gr. x.

Of Scammony and Resin of Scammony:—

1. Confectio Scammonii (Scammony or Resin of Scammony in fine powder oz. iij.; Ginger in fine powder oz. iss.; Oil of Caraway fl. drm. j.; Oil of Cloves fl. drm. ss.; Syrup fl. oz. iij.; Clarified Honey oz. iss.). Dose, gr. xv.—gr. xxx. or more.

2. Extractum Colocynthidis Compositæ. (See COLOCYNTHIS.)

3. Mistura Scammonii (Resin of Scammony grs. iv.; Milk fl. oz. ij. Triturate, adding the Milk gradually, until a uniform emulsion is obtained) fl. oz. ij.

4. Pilula Colocynthidis Composita. (See COLOCYNTHIS.)

5. Pilula Colocynthidis et Hyoscyami. (See COLOCYNTHIS.)

6. Pulvis Scammonii Compositus (Scammony oz. iv.; Jalap oz. iij.; Ginger oz. j.) gr. vj.—gr. xx.

Dose of pure Scammony, gr. v.—xij.

Contra-indications. 1, Inflammatory states of the alimentary canal; 2, Pregnancy; 3, The presence of the catamenia; 4, Irritable states of the uterus and pelvic viscera

2444. *Therapeutic Uses. In Dropsy and Dropsical Affections,*

* Med. Times, vol. xvii. p. 9. † Trans. of Lond. Ph., 1851, p. 277.

Scammony is sometimes advantageously exhibited as a hydragogue cathartic, and may be given in combination with the Bitartrate or Acetate of Potash. It is, however, inferior in efficacy to Elaterium, Croton Oil, or Gamboge.

2445. *In Cerebral Affections*, it proves useful not only as a purgative, but as a revulsive and derivative. Dr. A. T. Thompson considers that it is well adapted in maniacal cases for removing the scybala which often accumulate and remain for a long time in the cells of the colon.

2446. *Against Lumbrici and Ascarides Vermiculares*, the Compound Scammony Powder (*ante*), in combination with Calomel, acts with certainty and rapidity. It may be safely given to children in doses of gr. viij.—x., and to infants in doses of gr. iij.—v.

2447. Scilla. Squill. The Bulb, sliced and dried, of Urginea Scilla (Scilla Maritima), the Officinal Squill or Sea Onion. *Nat. Ord.* Liliaceæ. *Linn. Syst.* Hexandria Monogynia. *Hab.* The shores of the Mediterranean.

Med. Prop. and Action. Squill is expectorant and diuretic in doses of gr. j., gradually increased until slight nausea is produced. In larger doses, it is powerfully emetic and purgative. Its diuretic effect is seldom observable if purging or emesis be produced, and, consequently, when the first of these effects is desired, the medicine should be given in small doses, and discontinued on the occurrence of nausea. When it fails to occasion diuresis, which it occasionally does, it increases the cutaneous secretion. Its diuretic operation is rendered more certain by combination with other remedies of the same class. As an expectorant, it is said to attenuate the mucus, and also to excite a more copious excretion of it from the lungs, thereby lessening the congestion upon which the difficulty of respiration depends. As an emetic, it is objectionable on account of the uncertainty of its action; large doses, in some instances, having a very slight effect, whilst, in others, a small dose acts with extreme violence. In excessive doses, its operation is that of an acro-narcotic poison, gr. xxiv. having proved fatal. When recent, the bulbs are very acrid, and, applied to the skin in this state, cause inflammation and vesication; but, by long keeping, this property is either greatly diminished or altogether dissipated. Their activity depends upon two principles: 1, an acrid resin; 2, a bitter principle, *Scillitine* or *Scillitite*. Squill spoils by exposure to the air, and consequently requires to be kept in closely-stoppered bottles.

Offic. Prep. 1. Pilula Scillæ Composita (Squill in fine powder oz. j.½; Powdered Ginger oz. j.; Powdered Ammoniac oz. j.; Hard Soap oz. j.; Treacle oz. ij. or q. s.). Dose, gr. v.—gr. x.

2. Syrupus Scillæ (Bruised Squill oz. iiss.; Dilute Acetic Acid Oj.; Refined Sugar lbs. ij.; Proof Spirit fl. oz. iss. Digest the Squill in the Acetic Acid for three days, with a gentle heat; express, add the Spirit, and filter; then mix in the Sugar, and dissolve with the aid of heat. The product should weigh lbs. iij. oz. ij., and should have sp. gr. 1·330). This is a substitute for Oxymel Scillæ (Pharm. Lond.). Dose, fl. drm. ss.—fl. drs. iss.

3. Tinctura Scillæ (Bruised Squill oz. iiss.; Proof Spirit Oj. Prepared by maceration and percolation). Dose, ♏x.—♏xx.

Acetum Scillæ (Pharm. Lond.) (Bruised Squill ℥iiss.; Dilute Acetic Acid Oj.; Proof Spirit f℥iss. Macerate the Squill in the Acid, with a gentle heat, for three days; express, and let the dregs subside; then to the strained fluid add the Spirit). Dose, f℥ss.—f℥j.

Dose of powdered Squill, gr. j.—gr. ij.

2448. *Therapeutic Uses.* *In Asthma*, great benefit is often derived from Pil. Scillæ Co., in combination with Ext. Hyoscyam. vel Conii. The following formula of the late Dr. Bree has been found highly serviceable:—℞ Ext. Hyoscyam. gr. iij., T. Scillæ gutt. xv., Acid. Nit. Dil. ♏xxx., Aq. f℥iss., M.

2449. *In Chronic Bronchitis, Coughs, and Catarrh*, Squill proves highly useful, by promoting a more copious secretion from the mucous follicles, unloading the air-passages, and relieving the congestion and dyspnœa. It should never be employed until all active inflammation has subsided. Dr. C. B. Williams* observes that Squill is principally useful in mild cases unattended with purulent expectoration, and advises its being combined with an alkali and with a small portion of Opium, in order to prevent it passing off too rapidly by the kidneys.

2450. *In Croup*, Squill has been advised by Hufeland, Rumsey, and others, in the latter periods of the disease. "It should not," observes Dr. Copland,† "be exhibited in the more inflammatory states of the malady, until after the depletions have been carried sufficiently far, and we wish to procure the expulsion of the concrete exudations formed in the air-passages." It ought to be exhibited in small doses, in the remissions, and pushed to the extent of producing vomiting, when paroxysms of suffocation occur. After the membranous substances are removed, the remedy should be laid aside. Dr. Copland prefers the emetic effect to be obtained from Squills, as Antimony lowers too quickly the vital power, which ought in the advanced stages to be supported, so as to enable the diseased organ to throw off the morbid matter formed upon its surface. In certainty and uniformity of action, it is, however, very inferior to Antimony, Ipecacuanha, &c.

2451. *In Dropsy, Anasarca, &c.*, Squill given singly appears to exercise inconsiderable influence, but in combination with other remedies it proves of the greatest service. The following is Dr. Baillie's formula:—℞ Pulv. Scillæ gr. j., Pil. Hydrarg. gr. iij., Pulv. Digitalis gr. j.—iss., M. ft. pil. ter quaterve in die sumend. It may also be advantageously combined with the Acetate or Bitartrate of Potash. It is inadmissible in dropsy, connected with granular disease of the kidney, or whilst any acute inflammatory action is present. It is principally indicated in asthenic cases.

2452. *In Dysuria*, I have used a combination of Acetum Scillæ and Sp. Æther. Nit., in equal parts, with more uniform success than any other internal remedy. Of the mixture, ♏xxx. in Aq. Anisi, fl. oz. ij., may be repeated every hour.

* Cyc. Pract. Med., vol. i. p. 321.

† Dict. Pract. Med., vol. i. pp. 465, 470.

2453. *In Hydrocele of young subjects*, a radical cure has occasionally been effected by the local external application of Acetum Scillæ. It causes desquamation and subsequent absorption of the fluid. It cannot be depended upon, even in young subjects; in adults it almost always fails.

SCOPARIUS. See SAROTHAMNUS SCOPARIUS.

2454. SCROPHULARIA NODOSA. Knotty-rooted Figwort (Phoram, *Irish*). *Nat. Ord.* Scrophulariaceæ. *Hab.* Great Britain.

Med. Prop. and Action. The leaves are bitter and acrid, and, when swallowed, occasion vomiting and purging; they are also said to be diuretic and narcotic. The root was formerly esteemed in Scrofula; hence its name. It is rarely employed at the present day as an internal remedy, but proves useful in many cutaneous affections, when applied in the form of ointment (Fresh Leaves lbs. ij., Lard lbs. ij., Suet lb. j.).

2455. *Therapeutic Uses. In Cutaneous Diseases*, the local application of the ointment (*supra*) has been found of great service. *In Pemphigus Gangrenosus* (*Rupia Escharotica*, Bateman), it was found signally useful by Drs. Creighton, Tuomy, and others. Dr. Stokes* considers that if properly applied three or four times a day, three out of every four cases will be relieved, if not cured. *In Tinea Capitis, Impetigo, &c.*, it is favourably spoken of by Dr. Montgomery. Scrophularia has lately been recommended in Germany as a remedy in *Phthisis*.

2456. SCUTELLARIA GALERICULATA. Scull-cap. *Linn. Syst.* Didynamia Gymnospermia. A native of England. It was formerly a popular remedy for tertian fevers. It has of late years been advised by Dr. Evans† in the treatment of *Epilepsy*. He relates some cases illustrative of its efficacy, but its value is doubtful.

2457. SECALE CORNUTUM. Spurred Rye. ERGOTA (Pharm. Brit.). Ergot. The Grain of Secale Cereale, Common Rye, diseased by the presence of an imperfect fungus. The same fungus is occasionally developed on other grasses. Ergot contains about 35 per cent. of a fixed oil, formerly supposed to be the active principle, but when obtained by expression this oil is inactive. The active principle is extracted with the oil and remains dissolved in it. Ergot contains about 15 per cent. of a peculiar reddish-brown substance, *Ergotine*, which possesses active properties. The medicinal virtues of Ergot are extracted by alcohol and water.‡

* Dub. Med. Phys. Essays, vol. i., p. 146.

† Brit. Amer. Journ., Dec. 1848.

‡ Garrod, Ess. Mat. Med. and Therap., p. 315.

Med. Prop. and Action. In small (gr. xx.—gr. xxx.) or single doses, the effects of the Ergot on a healthy male adult are not very obvious, beyond causing a dryness of the throat and fauces, thirst, and, occasionally, pain in the abdomen. If taken in large and long-continued doses, it affects the cerebro-spinal system, and induces gangrene of the extremities, &c. The last-named effect is probably due to its causing obstruction in the vessels, by diminishing their calibre.* On the impregnated uterus, it exercises a most powerful influence; and on the unimpregnated uterus it also appears to excreise, but in a minor degree, a peculiar power; hence it is regarded as emmenagogue. All these points are considered at length in the following sections. It soon loses much of its efficacy if exposed to the air, and it consequently requires to be kept in well-stoppered bottles; even thus, it becomes deteriorated by age, and loses much of its efficacy. This is especially the case in the tropics, where the Fluid Extract of Ergot, or the Extract (Ergotine), may be advantageously substituted for the crude drug.

Offic. Prep. 1. Extractum Ergotæ Liquidum (Ergot in coarse powder lb. j.; Ether Oj.; Distilled Water Oiiiss.; Rectified Spirit fl oz. viij. Shake the Ether in a bottle with Oss. of the Water, and, after separation, decant the Ether. Place the Ergot in a percolator, and free it from its oil by passing the washed Ether through it. Remove the mare, and digest it in Oiij. of the Water at 160° F. for twelve hours. Press out, strain, and evaporate the liquor to fl. oz. ix.; and, when cold, add the Spirit. Allow it to stand for an hour to coagulate, then filter. The product should measure fl. oz. xvj.). One part of this extract represents a solid part of the drug. Dose, ℥xx.—fl. drm. ss.

2. Infusum Ergotæ (Ergot in coarse powder oz. ½; Boiling Distilled Water fl. oz. x. Infuse in a covered vessel for half an hour, and strain). Dose, fl. oz. j.—fl. oz. ij. This infusion should be made as required.

3. Tinctura Ergotæ (Ergot bruised oz. v.; Proof Spirit Oj. Prepared by maceration and percolation). Dose, ℥xxx.—fl. drm. j.

Dose of the fresh powder, gr. xx.—gr. xxx. It should be infused in boiling water for ten or fifteen minutes, and the liquid and dregs should both be taken.

2458. *Historical Notice.* The first mention of the use of Secale Cornutum as an agent in obstetries is in 1688, by Camerarius;† the next by Dr. Bautzmanni,‡ in 1699. The Ergot is represented by both these writers as being used in Germany to hasten labours. In 1774, on account of its reputed violence, its use was prohibited in France by legislative enactments. In 1777, Desgranges,§ a physician of Lyons, brought its beneficial effects to the notice of the profession; and in 1787 we find its virtues extolled by Pawlisky.‖ It, however, fell into disuse until 1807, when its merits were again brought forward by Dr Stearns,¶ of New York; and in 1813, Dr. Prescott,** of the same city, published an essay on its safety and efficacy. Since that date, it has been in general use; but, as will be seen in the following sections, many opposite opinions have been expressed on its therapeutic power and value.

2459. *The opinions of writers on the value of Ergot* are very diversified. Le Mercier, Lysancourt, Beclard, Basset, Legonlais, Desmoreaux, Gardien, Capuron, Jackson, and Hall, declare the Ergot to be inefficacious; and Madame La Chapelle affirms, after long experience, that "its innocence is its great virtue!" On the other hand, Drs. Houston, Hossack, Holeome, and others object to its use, on account of its extremely active and deleterious property; whilst a third class, including Michell, Church, Godwin, Desgranges, Dewees, Davies, Clarke, Mackenzie, Blundell, Jewell, Churchill, Wright, and the great body of practitioners, regard it, when properly administered, as a safe, effica-

* Garrod, op. et loc. cit.

† Actes des Curieux de la Nature, 1688, art. 6, obs. 82.

‡ Ephem. Curios. Germanic., dec. iii. art. 3, obs. 133.

§ Gazette de Santé, 1777.

‖ Lancette Française, t. viii. p. 164.

¶ New York Med. Repository, vol. xi. p. 308; and vol. xii. p. 244.

** Dissertation on the Secale Cornutum, New York, 1813.

cious, and useful remedy. These differences of opinion are explicable only in the following way:—the first class either used too small a dose, or employed an inferior or damaged article; the second class administered it in too large or frequently repeated doses; whilst the third class hit upon the happy medium.

2460. *As an agent for producing Abortion*, it has been variously estimated. That it will induce premature labour is asserted by Gerardin, Hufeland, Rose, Guibert Ingleby.* Ramsbotham,† and Merriman;‡ its power in this character is denied by Hall Prescott, Michell, Villeneuve, Wright, and Lee; whilst Dr. De Gravina§ came to the conclusion, from numerous experiments on animals, that, so far from shortening, it prolonged the period of gestation. There is a great weight of evidence in favour of the opinion that Ergot does possess the power of inducing premature labour. Dr. Ramsbotham succeeded, in 26 cases, in inducing labour at the seventh and eighth month, by the administration of the Ergot alone, without interfering with the membranes. All the mothers recovered; 12 of the children were born alive, 14 were still-born, and of the first class, only 4 survived any length of time. This ratio of deaths is much greater than when labour has been induced in any other manner, and, consequently, it should not be had recourse to, excepting under extreme circumstances. The dose required to induce premature labour, when deformity of the pelvis, &c., demand such a step, is very variable. In two cases related by Dr. Patterson,‖ one woman took only ʒvj., whilst the other required ʒxxxiv. It was given in infusion (ʒss., Aq. fʒxxiv.), in doses of fʒij. every third hour.

2461. *As a poisonous agent*, Ergot induces two states, which have been denominated gangrenous ergotism and convulsive ergotism. The former is characterised by formication (a feeling as if insects were creeping over the skin), great depression of the vital powers, coldness of the extremities, followed by gangrene. The gangrene is probably produced by obstruction of the vessels. The convulsive form induced by the use of ergotized bread prevailed in Silesia in 1722, in the environs of Berlin in 1723, and at Wirtemberg in 1736. The symptoms observed were itching and tingling of the feet, followed by violent cardialgia and pains in the head and hands. These pains in a short time subsided, the head became heavy, swimming, and a mist before the eyes ensued. The fingers and hands became so spasmodically contracted, that no force could straighten them, and the pain was described as equalling that of luxation. Some of the persons became totally blind, and others had double vision; the memory failed, the conversation was wild and unintelligible, the movements staggering and awkward. Some became maniacal, and others comatose. Opisthotonos usually occurred. Of 500 patients, 300 children under five years of age perished. Those who survived were a long time before they perfectly recovered. The peculiar circumstances under which Ergot evidences its poisonous effects are undetermined; as Pentin, Froggart, Michell, Parmentier, Murray, and others have exhibited it in large and frequently repeated doses, without observing any ill effects to follow. (Wright.¶)

2462. *Therapeutic Uses. As an expulsive agent in Labours.* Within a period varying from five minutes to half an hour, on an average in about fifteen minutes, after the Ergot has been swallowed, the uterine contractions become stronger and more frequent, so that, in fact, they may be said to run into one another, there being no distinct interval between them; and these continue, in ordinary cases, until the child is expelled. In some rare cases, it causes vomiting, headache, delirium, and

* Obstetric Cases, p. 233.
† Lond. Med. Gaz., June 28, 1834.
‡ Synopsis, &c., 4th Ed., p. 198.
§ Annal. de Med., Oct. 1839.
‖ Ed. Med. Surg. Journ., Jan. 1, 1840
¶ Op. cit.

great disturbance of the cerebro-spinal system. Dr. Churchill* mentions five or six instances in his own practice; and the same effects have occasionally been observed by others. Dr. Hardy† observed, that in the majority of cases, the administration of the Ergot was followed by a marked diminution in the frequency of the mother's pulse, and a corresponding change in the action of the fœtal heart. In some, this depression of the pulse remained for many days. In most cases, it produces no ill effects, either temporary or permanent, on the mother; but even here there are exceptions. Mr. Grantham‡ states that he has seen the uterus impaired as to its future contractile power, after the use of large doses of the Ergot, and that he has had frequent occasion to apply the forceps, to assist the parturient efforts of those women whose previous labours had been hastened with this drug.

2463. *The dose and mode of administration.* Ergot may be given in the form of either of the officinal preparations, or in that of oil (Ol. Ergotæ, obtained by evaporating an Ethereal Tincture at a very gentle heat), in doses of ɱxx.—1., or in Extract (Ergotine) (gr. v.—x.). The most convenient form is that of infusion, made by infusing gr. xx.—gr. xxx. of the powder for ten minutes in fl. oz. iij. of boiling water. Dr. Ramsbotham§ observes, that if the infusion be allowed to stand more than twenty minutes it is apt to nauseate. Villeneuve‖ administered it in the form of enema, and considered this the most preferable mode, when much irritability of the stomach was present. The above doses may be repeated for three times, at intervals of half an hour; but gr. xxx. of the powder, or its equivalent of the other preparations, should never be exceeded; for if, in this quantity, it does no good, more will be useless, and probably injurious.

2464. *The circumstances under which it proves useful, and those in which it is inadmissible,* have been judiciously set forth by Dr. Churchill.

Ergot may be safely given:—

1. When the pains are feeble and inefficient without especial cause.
2. If the os uteri be soft and dilatable.
3. If there be no obstacle to a natural delivery.
4. If the head or breech present, and be sufficiently advanced.
5. If there be no head symptoms, or excessive general debility.

Ergot should not be given:—

1. If the os uteri be hard and rigid.

* Theory and Practice of Midwifery, p. 202.
† Dub. Journ. of Med. Sciences, vol. xxvii. p. 224.
‡ Facts and Obs., p. 195.
§ Obstetric Medicine, p. 219.
‖ Loc. cit.

2. If the presentation be beyond reach.
3. If there be mal-presentation.
4. If the pelvis be deformed.
5. If there be any serious obstacle to delivery in the soft parts.
6. If there be head symptoms or much general irritation.

The period at which it is generally the most advantageous to administer Ergot, is when the head of the child has passed the brim of the pelvis; but its use is by no means confined to this period. Dr. Meigs* advises that it should be given only at the moment, or just before the birth of the child, in order to secure, if possible, a permanent and good contraction of the womb after labour, in women who are known in their preceding labours to have been subject to alarming hæmorrhage. It is less applicable to first labours than to subsequent ones.

2465. *Modus Operandi.* Ergot, independent of its action on the cerebro-spinal system, appears to exercise a special action on the uterine contractile fibre. Some consider that it acts specially upon the nerves of the uterus. Dr. Tyler Smith† observes that the blood is the true channel through which the Ergot acts, and that the organ which it reaches and affects through this channel is the spinal centre.

2466. *Its effects on the Fœtus.* On this, as on every other point connected with the use of Ergot, much difference of opinion prevails. Dr. Houston,‡ of New York, observes that it has caused many fatal demonstrations, and adds, "From what I have seen and heard, more children have perished by the injudicious use of Ergot, during the few years which have followed its introduction into the practice of this country (America), than have been sacrificed by the unwarrantable use of the crochet for a century past." A similar opinion has been expressed, in different words, by Drs. Hossack, Moore, Holcombe, Moreau, Patterson,§ and more recently by Prof. Meigs.‖ On the other hand, Michell¶ considers that it has saved the lives of many children. Dr. Church** also says that he has not observed that the Ergot, in any case, caused the death of the child. Dr. Wright†† expresses a similar opinion. There is, however, a great mass of evidence in favour of the opinion that the Ergot does act injuriously on the fœtus. I would refer particularly to a valuable paper by Dr. Hardy,‡‡ whose observations seem to have been conducted with great care and minuteness. Out of

* Dub. Quart. Journ., Feb. 1851.
† Lancet, Dec. 16, 1848.
‡ Amer. Med. Surg. Journ., Jan. 1829.
§ Ed. Med. Surg. Journ., Jan. 1, 1840.
‖ Dub. Quart. Journ., Feb. 1851.
¶ On the Use of the Ergot, p. 78.
** Philadelph. Journ., May 1824.
†† Op cit., p. 27.
‡‡ Dub. Journ. of Med. Sciences, May 1845.

forty-seven infants, seven were expelled alive naturally, seven were born alive by the application of the forceps and vectis, and thirty-three were expelled dead. This, however, is a much larger ratio than occurs in ordinary practice, when the Ergot has been administered. Dr. Hardy observed the most common effect of the Ergot to be a diminution in the pulsations of the fœtal heart, succeeded, after a short time, by an irregularity of the beats, which continues more or less until the sounds intermit, and at length, after a variable period, become quite inaudible. He further observed, that in those cases where the number of pulsations has been steadily reduced below 110, accompanied at the same time by intermissions, the child will be rarely, if ever, saved, although its delivery should be effected with the greatest possible speed; he adds, however, that the mere depression of the fœtal heart below 100, without intermissions, is not in itself sufficient to cause this result, as instances have occurred where the number of pulsations have been reduced as low as 56, and yet by speedy delivery, and the adoption of the usual remedies, the children have been saved; but in none of these instances was there a steady, distinct, and well-marked intermission. These observations point out the necessity of the use of the stethoscope, in order to ascertain the condition of the fœtal circulation. These remarks coincide fully with those of Dr. Ely* and Dr. Beatty.† The latter fixes the limit beyond which the child will rarely be born alive, after the Ergot has been administered, at two hours. To this rule he met with but three exceptions. "It by no means follows from this," he observes, "that a child born within this period should always survive; in two instances the children were lost, although only twenty minutes in one, and five-and-twenty in another, elapsed between the administration of the Ergot and the birth of the child." Dr. Beatty‡ gives the following distinguishing characteristics of a fœtus expelled after the use of the Ergot: general lividity of the surface; universal rigidity of the muscular system, producing the stiffened limbs and clenched hands of those infants in whom life was extinguished; and a remarkable kind of alternating spasm and palsy, which supervened in those who survived. Dr. Hardy further observes, that the depressing effects of the Ergot on the fœtus, in those cases in which the child is expelled alive, are so great, that frequently a considerable time elapses after birth, before the children can be perfectly restored; and that infants born in a weak state, where no Ergot has been used, are restored to animation with much less difficulty than in those cases in which this medicine has been employed during labour. Dr.

* Lond. Journ. of Med., Nov. 1851. vol. xxi. p. 361.
† Dub. Journ. of Med. Science, ‡ Op. cit., vol. xxv. p. 213.

Catlett* considers that its use gives rise to a predisposition to Hydrocephalus, in the early stage of infantile life. Different opinions have been advanced to account for the mortality of children, after the use of the Ergot. Dr. Beatty, Dr. Hardy, and others, attribute it to a poisonous effect indirectly exerted upon the fœtus; and others, and among them Prof. Meigs,† to the vigorous contractions of the uterus, and its pressure on the cord. The first opinion is supported by Dr. Hardy, by the fact that the depression of the heart's action in the fœtus took place in numerous instances in which the Ergot produced little or no effect upon the uterus, or on the pulse of the mother. In support of the second opinion, Dr. Patterson‡ mentions that, "in two cases of apparently strong healthy children, expelled dead after the use of the Ergot, the conjunctiva was found literally gorged with blood;" but this point requires further elucidation. In addition to the above physicians Girardin, Burns, Moreau, Churchill, &c., have expressed their opinion that the child is more frequently still-born after the use of the Ergot, than when it has not been employed; although they differ as to the mode in which the fatal result is brought about. In conclusion, I would remark, that although the above observations point out the danger which sometimes, indeed frequently, attends the employment of Ergot, yet that the danger is not of so serious a character, nor so constant in its recurrence, as to prevent the practitioner from employing it in proper cases, and with due caution, as laid down in the preceding sections.

2467. *Its action on the Placenta.* In most cases the placenta comes away favourably after the expulsion of the child, when Ergot has been administered, but occasionally the contractions of the uterus, which were so favourable towards the expulsion of the fœtus, subsequently continue, and the placenta is in consequence retained. Dr. Churchill mentions a case of the kind, and Dr. Harvey relates one in which the placenta was detached, and lying in the cavity of the uterus, and yet the contractions were so vigorous, that its removal could not be effected for an hour, until relaxation took place. It is inadmissible when the placenta is retained in consequence of morbid adhesion. Dr. Catlett considers that it causes hour-glass contraction. When, however, the placenta is retained, in consequence of the feebleness or absence of uterine contractions, a dose of Ergot (gr. xxx.) will often cause its speedy expulsion. Hæmorrhagê after the birth of the child is very rare, when Ergot has been employed; and, indeed, it does not seem, in the great majority of cases, to interfere in any way with the speedy recovery of the mother, or with the subsequent uterine functions.

* Edin. Med. Surg. Journ., Jan. 1, 1842.

† Dub. Quart. Journ. of Med. Sci., Feb. 1851.

‡ Edin. Med. Surg Journ., Jan. 1, 1840, p. 143.

2468. *In Hæmorrhage occurring during Labour*, the Ergot proves of great service, inducing contraction of the uterus, and arresting the discharge more rapidly than any other remedy. If, however, there be any great nervous exhaustion, Opium should be first given; but if the hæmorrhage still continue after the exhaustion is removed, the Ergot may be had recourse to with evident advantage. Dr. Beatty * observes that, to act beneficially, the Ergot should be employed early: "It will not do," he adds, "to wait until the system is exhausted, and the vital powers are reduced to the lowest ebb; for then the effect of the Ergot may be more prejudicial than advantageous, owing to the power it possesses of depressing the action of the heart." Dr. Beatty also considers, that the Ergot will prevent the occurrence of hæmorrhage in certain cases, where, from previous experience, we have reason to know that it is likely to occur. This view is supported by the opinion of Prof. Meigs† and other writers.

2469. *In partial Presentation of the Placenta*, Dr. Ely‡ strongly advises a full dose of the Ergot to be given immediately after the rupture of the membranes. "Here," he observes, "until the os uteri is considerably dilated, the bleeding can only be stayed by the plug; but when the os is open, thin, and yielding, if we rupture the membranes, the descent of the head will so compress the bleeding vessels as to place the patient in safety." To effect this more rapidly and certainly, the Ergot is advised.

2470. *Other Therapeutic Uses. In Amenorrhœa*, the Ergot proved successful in the hands of Dr. Neal.§ Dr. Wright‖ states that he has repeatedly seen the deranged menstrual function restored by a persevering use of the Ergot; and also quotes similar testimony from Drs. Bechman and Davies. Lentin and others, however, assert that Amenorrhœa is generally attendant upon ergotism.

2471. *Uterine Hydatids.* To favour the expulsion of these, Dr. Dewees¶ first suggested the use of the Ergot; and its value, in such cases, has been in part realized by Dr. Macgill.**

2472. *In Uterine Polypus*, the Ergot has been administered with a view to force these bodies beyond the neck of the uterus, either for the purpose of applying a ligature, or with a view to their excision. (Dewees.) It also proves useful *in promoting the expulsion of sanguineous clots* from the uterus.

2473. *In Leucorrhœa and Chlorosis*, the Ergot was first intro-

* Dub. Journ., May 1846.
† Dub. Quart. Journ., Feb. 1851.
‡ Lond. Journ. of Med., Nov. 1851.
§ Researches, &c., p. 79.
‖ Edin. Med. Surg. Journ., loc. cit.
¶ Midwifery, p. 639; and Diseases of Females, p. 309.
** Amer. Journ. of Med. Sciences, Nov. 1827.

duced by Dr. M. Hall,* and has since been employed with success by several continental physicians. Dr. Churchill† employed it in doses of gr. v., three or four times a day, with decided benefit; a blister, applied at the same time to the sacrum, appears to assist its efficacy. *In Dysmenorrhœa*,‡ the Ergot, given just before the expected appearance of the menses, appears to have a beneficial effect. Dose, gr. v., three or four times daily.

2474. *In Menorrhagia*, the Ergot is advised by Drs. Beatty,§ Ferguson,‖ Churchill,¶ &c.; indeed, its value is universally admitted. Dr. Burne** mentions some cases in which an exhausting, draining hæmorrhage had persisted for four or five weeks after abortion, which yielded at once to the use of the Ergot. In other forms of *Uterine Hæmorrhage, from whatever cause arising*, Ergot produced excellent effects in the hands of Trousseau.†† Some valuable observations on its efficacy in these cases are recorded by Dr. Graily Hewitt.‡‡ The dose as in the last section.

2475. *In Hypertrophy of the Uterus*, the aqueous extract of the Ergot has been used with great success by Dr. Arnal.§§ In all chronic *engorgements of the Uterus, Leucorrhœa, Chlorosis, &c.*, he states that he found it act with uniform benefit, in doses of gr. v.—xv., daily; and that, in some instances, this was continued for three months without producing any ill effects. In some cases it is advantageously combined with the Iodide of Iron.

2476. *In retention of Urine, depending upon a want of contractility of the muscular coat of the Bladder, or from Paralysis*, Dr. Allier‖‖ advises Ergot, in doses of ℈j.—℈ij., daily. He relates some cases successfully treated with it. In retention arising from other causes, it was found inefficient. *In Incontinence of Urine occurring in young Girls*, the same remedy was found by M. Guérard¶¶ to be most efficacious.

2477. *In Gonorrhœa*, Dr. Ryan*** advises the use of the Ergot. He considers that it exercises a powerful influence on the mucous membranes; but its efficacy in this, and in *Gleets*, for which it is also recommended, requires confirmation. Dr. Negri††† employed it successfully in these cases, both in the

* Lond. Med. and Phys. Journ., May 1829.
† On Diseases of Women, p. 135, et seq.
‡ Churchill, Edin. Med. Surg. Journ., L. N. S.
§ Op. cit.
‖ Lib. of Med., vol. iv. p. 316.
¶ Midwifery, p. 64.
** On Habitual Constipation, p. 102.
†† L'Union Méd., 1859, No. 36.
‡‡ Lancet, Dec. 13, 1862.
§§ Bull. Gén. de Thérap., Aug. 1843.
‖‖ Med.-Chir. Rev., No. lxi. p. 122.
¶¶ Med. Times, vol. xv. p. 305.
*** Lond. Med. Journ., vol. iv. p. 590.
††† Lond. Med. Gaz., vol. xiii. p. 369.

male and female. *In Spermatorrhœa*, good effects from the use of Ergot (ʒss.—ʒj., daily), have been obtained by Dr. C. L. Mitchell.*

2478. *In Atonic Hæmorrhage, in Hæmoptysis, Hæmatemesis, Hæmaturia, and Epistaxis*, the Ergot has been employed, and, it is stated, with decided benefit, by Mr. Ings,† Pignacea,‡ Negri,§ and others; but its powers as an astringent in these cases require confirmation. Dr. Copland speaks favourably of it.

2479. *In Acute and in Chronic Diarrhœa*, the Ergot has been successfully employed by Drs. Wright,‖ Stout, and others. In one case mentioned by Dr. Wright, gr. v., thrice daily, effected a marked improvement, when dysenteric symptoms were coming on.

2480. *In Ptosis and Paralysis of the Eyelids*, an aqueous infusion as a collyrium, is advised by M. Carron; and a case is related, in which paralysis of the eyelids from partial Asphyxia following the respiration of charcoal fumes, was cured in eight days, by fomentations with an aqueous infusion of Ergot.¶ *In abnormal Dilatation of the Pupil*, from any cause, its local application is suggested by Dr. Comperat,** he having observed that the powder of the Ergot, used as snuff, has the power of removing the dilatation of the pupil produced by Belladonna. *In a disturbed state of the accommodation power of the Eye*, especially induced by overtaxing the organ on small objects with an insufficient amount of light, Prof. Willebrand†† found Ergot of especial advantage. He also found it of great use in several cases of *Acute and Chronic Inflammation of the Eye*, and especially in *Blepharitis* and *Pustular Conjunctivitis of Children*, the cure proving much more rapid and relapse much more rare than when local means alone are relied on. He prescribes gr. v. thrice daily, combining it with Magnesia, or when Chlorosis is present with Iron. The same authority found it very useful in *Enlarged Spleen from Intermittent Fever*, when large doses of Quinine had failed. It is especially indicated in cases of *Relapsing Intermittents* depending upon enlarged spleen. *In Erysipelatous Affections*, he found it of good service applied externally as a cataplasm.

2481. *In Paralysis*, the Ergot has been administered with advantage by Lallemand, Peterquin,‡‡ &c. *In Paraplegia*, it produced great benefit, but was found quite impotent in *Hemiplegia*. The patient is advised to be kept on a nourishing diet.

* Amer. Med. Monthly Journ., April 1861.
† Lond. Med. Gaz., June 24, 1834.
‡ Medico-Chir. Rev., vol. xv. p. 171.
§ Op. cit.
‖ Edin. Med. Surg. Journ., loc. cit.
¶ Med.-Chir. Rev., vol. lx. p. 613.
** Med. Times, vol. xviii. 1848.
†† Brit. and For. Med.-Chir. Rev., July 1859.
‡‡ Med.-Chir. Rev., No. lxi. p. 222.

2482. Senega. Senegæ Radix. The Root of Polygala Senega. Seneka. Snake-root. *Nat. Ord.* Polygalaceæ. *Linn. Syst.* Diadelphia Octandria. *Hab.* North America.

Med. Prop. and Action. Stimulant, expectorant, diuretic, and emmenagogue, in doses of gr. x.—xl., every three or four hours; in larger doses it proves emetic and cathartic. It is best given in the form of infusion or decoction (Ph. L.) in doses of fl. oz. j.—fl. oz. ij., three or four times daily. It is a powerful stimulant of the absorbent system; it increases all the secretions, particularly the urine and saliva; indeed, in some instances, a copious and troublesome salivation occurs during its prolonged use. It diminishes any irregularity of the heart's action, renders the pulse slower and firmer, and imparts a tone, to the digestive organs, and to the general system. Its activity depends upon Senegin or Polygalic Acid, which, in doses of gr. viij., has proved fatal to dogs in three hours. As its name indicates, it was formerly esteemed in the treatment of the bites of snakes;* but its use in this character is now discontinued. It is contra-indicated in all active inflammatory states, particularly of the lungs.

Offic. Prep. 1. Infusum Senegæ (Senega bruised oz. ss.; Boiling Distilled Water fl. oz. x. Infuse one hour and strain). Dose, fl. oz. j.—fl. oz. ij.

2. Tinctura Senegæ (Senega bruised oz. iiss.; Proof Spirit Oj. Prepared by maceration and percolation). Dose, ℥xxx.—fl. drs. ij.

Dose of Powdered Senega, gr. x.—xl.

2483. *Therapeutic Uses. In Pneumonia*, when the inflammatory symptoms have subsided, and any amount of debility, with weak pulse, cool skin, cough, and dyspnœa remains, Dr. C. B. Williams† recommends the use of the decoction of Senega. He considers that, besides its tonic property, it acts specifically upon the lungs and absorbent system. He states that he has seen cases of this kind, which had resisted other remedies, almost immediately improved by its use. In a few hours the pulse has become slower, the breathing more free, the tongue cleaner, and the strength is improved. *In Chronic Catarrh*, it has also been found highly serviceable; and in *Chronic Bronchitis*, Dr. Stokes prefers it to all other remedies, particularly when given in combination with Carbonate of Ammonia. It has also been recommended in *Humoral Asthma.*

2484. *In Croup*, in the second stage, when the object is to cause the expulsion of the membrane or lymph which has been thrown out during the first or active stage of the disease, Dr. Dewees‡ strongly advises Senega, as a powerful and certain emetic. He directs ʒss. of the powdered root to be boiled in Oss. of water, until the quantity is reduced to one-half. Of this one or two teaspoonfuls are to be given every fifteen or twenty minutes, until it causes vomiting. Dr. Archer§ advises it to be conjoined with the use of Calomel.

2485. *In Gastro-enteritis, complicated with Disease of the Lungs*, Senega is highly spoken of by Dr. Stokes.‖ He states, that if

* See Catesby's Nat. Hist. of Carolina, Introduction.

† Cyc. Pract. Med., vol. iii. p. 445.

‡ On the Management of Children, &c., 7th Ed., p. 479.

§ Duncan's Annals of Med., vol. iv. p. 511.

‖ Cyc. Pract. Med., vol. ii. p. 339.

given before ptyalism is produced, its virtues are small; but that after this has been effected, it will seldom disappoint the practitioner. He advises the following formula :—℞ Decoct. Senegæ f℥vij., T. Scillæ, T. Opii Camph. āā f℥j., Ammon. Carb. gr. v.—℈j., M. capiat. coch. amp. j. secundis horis.

2486. *In Ascites and Dropsical Affections occurring after Fevers, and other Debilitating Diseases*, the influence of Senega is often very marked. It not only greatly increases the urinary secretion, but improves the tone of the digestive organs and the system generally. It may be given in doses of fl. oz. ij. of the infusion with Squills, &c., three or four times a day; and in order to increase its diuretic effect, diluents should be employed, and the surface of the body kept cool.

2487. *In Palpitations connected with Disease of the Heart*, Lombard,* of Geneva, observes that Senega is a valuable remedy, in doses of gr. xij.—xxiv. of the Extract, or ℥j. of the root infused in f℥iv. of water. The daily administration of this remedy appears to diminish the frequency and irregularity of the heart's action, as well as the consequent sanguineous congestion, in individuals suffering from disease of the heart, with dilatation of the cavities. *In Hysterical Palpitations*, it also proves highly serviceable, combined with Henbane, the carbonates, &c.

2488. *In Amenorrhœa and Dysmenorrhœa*, Senega, as an emmenagogue, was first recommended by Dr. Hartishorne, of Philadelphia. He found it chiefly useful in recent cases, and began to administer it a fortnight before the expected appearance of the discharge; giving Oj. of a saturated decoction daily, until the medicine disagreed, or the discharge appeared. Dr. Chapman found it particularly useful where a membrane was habitually discharged, and combined it with an alterative course of Mercury.†

2489. Senna. Sennæ Folia. The Leaves of Cassia Lanceolata, C. Obovata, Cassia Elongata, and of other species of Cassia. *Nat. Ord.* Cæsalpineæ. *Linn. Syst.* Decandria Monogynia. There are five principal kinds of Senna met with in commerce, named after their respective sources. They rank in activity and value in the following order :—1, Alexandrian Senna (*offic.*); 2, Tinnevelly or Madras (*offic.*); 3, Bombay or Common Indian Senna; 4, Tripoli; and 5, Aleppo. An excellent description of these varieties (which differ much in form, &c.) will be found in Prof. Royle's Manual, and in Dr. Pereira's larger work.

Med. Prop. and Action. Cathartic. It is chiefly given in infusion, in doses of fl. oz. j.—fl. oz. ij., in conjunction with a saline purgative, forming the

* Brit. For. Med. Rev., No. i. p. 265. † Mat. Med., art. Senega.

common "Black Draught." The confection, in doses of gr. lx.—oz. ss., is also a useful, mild purgative; and the tincture (fl. drm. j.—fl. drs. iij.) is a warm, aromatic purge, but chiefly used as an adjunct to other remedies of the same class. The activity of Senna was for a long time considered to reside in a peculiar principle, *Cathartine;* but M. Heerlein has shown this opinion to be incorrect. In his own person, ℥iv. of this substance, taken in four doses, at the intervals of an hour, produced no sensible effect. Senna acts principally on the small intestines, and produces copious, loose evacuations. It appears to act, according to Drs. Ballard and Garrod, both by augmenting the peristaltic movements, and by favouring the flow of the intestinal secretions. It generally operates under four hours, and in some persons its operation is attended with griping; this may be in a great measure obviated by combining it with carminatives. *Its efficacy is increased* by drinking plentifully of diluents, by the addition of Camphor, or of the decoction of Guaiacum; also by the sulphates of Magnesia and Soda, and some other saline purgatives. *Its efficacy is decreased or destroyed* by boiling, by being kept long ready-made, by the carbonates of alkalies, and by Rhubarb. *Its nauseous taste is disguised* by giving it in strong coffee, or by the addition of milk and sugar, when it much resembles common tea. The administration of Senna is attended with very slight, if any, consequent constipation; and if taken habitually, as in the case of Castor Oil, the dose may gradually be decreased until a very small quantity suffices to procure a full evacuation. That it exercises a specific action on the bowels is shown by the experiments of Petit,* who found fomentations of Senna leaves placed over the abdomen produce a brisk cathartic operation. If given to a woman during lactation, it communicates a purgative property to the milk.

Offic. Prep. 1. Confectio Sennæ (Senna in fine powder oz. vij.; Coriander in fine powder oz. iij.; Figs oz. xij.; Tamarinds oz. ix.; Cassia Pulp oz. ix.; Prunes oz. vj.; Extract of Liquorice oz. ¾; Refined Sugar oz. xxx.; Distilled Water fl. oz. xxiv. Prepared by boiling the Figs in the Water for four hours; then expressing and straining the liquor, to which more water is to be added, to make it fl. oz. xxiv. The Prunes are then boiled in it for four hours. The Tamarinds and Cassia are then added, macerated for a short time, and the pulp is pressed through a hair sieve. The Sugar and Liquorice are then dissolved in the mixture with a gentle heat, and while it is still warm the Senna and Coriander are added, and thoroughly combined by stirring. The product should weigh oz. lx.). Commonly known as "Lenitive Electuary." Dose, gr. lx.—oz. ss.

2. Infusum Sennæ (Senna oz. ss.; Ginger sliced grs. xxx.; Boiling Distilled Water fl. oz. x. Infuse one hour, and strain). Dose, fl. oz. j.—fl. oz. iij.

3. Syrupus Sennæ (Senna broken small oz. xvj.; Oil of Coriander ℥iij.; Refined Sugar oz. xxiv.; Distilled Water Ov. or q. s.; Rectified Spirit fl. oz. ij. Digest the Senna in fl. oz. lxx. of the Water for twenty-four hours; press and strain. Digest the mark in fl. oz. xxx. of the Water for six hours; press and strain. Evaporate the mixed liquors to fl. oz. x., and, when cold, add the Spirit mixed with the Oil of Coriander. Filter, and wash what remains on the filter with Distilled Water until the filtrate measures fl. oz. xvj. Then add the Sugar, and dissolve with a gentle heat. The product should weigh lbs. ij. oz. x., and have the sp. gr. 1·310). Dose, fl. drm. j. upwards. Usually prescribed for children.

4. Tinctura Sennæ (Senna broken small oz. iiss.; Raisins freed from seeds oz. ij.; Caraway oz. ss.; Coriander oz. ss.; Proof Spirit Oj. Prepared by maceration and percolation). Dose, fl. drm. j.—fl. drs. iij.

Dose of powdered Senna leaves, gr. xx.—gr. cxx. Rarely administered in this form.

Incompatibles. Mineral Acids; Carbonates of Alkalies; Lime-water; the Salts of Lead, Silver, Iron, and Copper; Corrosive Sublimate; Tartar Emetic; infusion of Yellow Bark, &c.

* Quoted by Dr. Copland, art. Constipation.

2490. *Therapeutic Uses. In habitual Constipation, in the Constipation of Pregnancy, and in the Puerperal State*, Senna, particularly in the form of the Confectio Sennæ (the old Lenitive Electuary), proves a mild and efficient purgative. It is of an agreeable flavour, does not leave constipation subsequently, and causes very slight excitement.

2491. *In Bilious Derangements and Visceral Obstructions*, the infusion of Senna (*ante*), in doses of fl. oz. j.—fl. oz. iij., either alone or combined with the Sulphate of Magnesia (gr. cxx.—gr. cccl.x.) or the Tartrate of Potash (gr. lx.—gr. cxx.), forms an efficient purgative. It is best given in the morning, a mild mercurial being taken the night previously. The routine practice of "Blue Pill and Black Draught" is now, happily, almost discarded; but when judiciously given, it proves, in many instances, a safe and efficient plan of treatment. The habitual use of these remedies cannot be too strongly condemned. When the patient's condition will admit of free purging, Dr. Graves* considers that the infusion should be given in doses varying from f℥iij. to f℥vj.

2492. *In Atonic Dyspepsia*, particularly when attended by constipation, a mixture of equal parts of the infusions of Senna and Gentian proves eminently serviceable. It proves an efficient purgative in *Atonic Duodenal Dyspepsia*.

2493. SERPENTARIA. Serpentariæ Radix. The root of Aristolochia Serpentaria. Virginian Snake-root. *Nat. Ord.* Aristolochiaceæ. *Linn. Syst.* Gynandria Hexandria. *Source*, United States.

Med. Prop. and Action. Stimulant, tonic, and diaphoretic. It is best given in infusion or in tincture. In large doses, it causes nausea, griping with watery stools, headache, and disturbance of the cerebral functions, with greatly increased arterial action. Active principles: 1, a volatile oil; 2, a resin; 3, a bitter extractive. It is contra-indicated in acute inflammatory affections occurring in plethoric subjects.

Offic. Prep. 1. Infusum Serpentariæ (Serpentary oz. ½; Boiling Distilled Water fl. oz. x. Infuse for two hours, and strain). Dose, fl. oz. j.—fl. oz. ij.

2. Tinctura Cinchonæ Composita. (See CINCHONA.)

3. Tinctura Serpentariæ (Serpentary bruised oz. iiss.; Proof Spirit Oj. Prepared by maceration and percolation). Dose, fl. drm. ss.—fl. drs. ij.

Dose of Serpentary, gr. x.—gr. xxx.

2494. *Therapeutic Uses. In Hydrophobia and the Bite of the Rattlesnake*, it was formerly held in high repute, but it does not appear to have sustained its character, and is now rarely employed. (See ARISTOLOCHIA INDICA.)

2495. *In Typhus and Typhoid Fever*, Serpentaria is occasionally administered, with a view of exciting diaphoresis, and supporting the powers of the system. Cullen speaks favourably of its

* Clin. Lect., vol. ii. p. 525.

efficacy; and Dr. Nevins* states that it is extensively used at Guy's Hospital.

2496. *In Intermittent Fevers*, it was advised by Sydenham, in ℈j. doses. It does not appear to possess much power when given alone, but may be advantageously combined with other anti-periodics.

2497. *In Dyspepsia*, when the skin is hot and dry, Serpentaria has been found an excellent remedy. (A. T. Thompson.)

2498. *In Cynanche Maligna*, a strong infusion is stated to form an eligible gargle.

2499. *In Urticaria*, Serpentaria has obtained some repute; it may be combined with ℈j. of the Carbonate of Magnesia or Soda. (Dr. Watson.†) Mr. Erasmus Wilson‡ mentions one case in which it proved completely successful.

2500. SEVUM PRÆPARATUM. The internal Fat of the Abdomen of the Sheep. Ovis Aries; purified by melting and straining.

Med. Prop. and Action. Used externally as an emollient. It is one of the ingredients in Emplastrum Cantharidis and Unguentum Hydrargyri. It is sometimes added to poultices. It is also occasionally given internally as a nutrient. Suet boiled in milk and taken, in the morning, is a popular remedy *in Phthisis.*

2501. SIMARUBA. The bark of the root of Simaruba Amara. Mountain Damson. *Nat. Ord.* Simarubaceæ. *Linn. Syst.* Decandria Monogynia. *Source*, Guiana and Jamaica.

Med. Prop. and Action. Tonic and astringent, in doses of gr. xx.—gr. xxx. of the powder; or fl. oz. j.—fl. oz. ij. of the infusion (gr. clxxx.—Aq. Ferv. ℥j.). In larger doses it is emetic. It is advantageously combined with carminatives or opiates. It is a mild and efficacious bitter tonic, but has no advantage over other remedies of the same class. Active principle, *Quassine.*

Dose, gr. xv.—gr. xxx.

Incompatibles. The Carbonates of Alkalies; Lime-water; the Salts of Lead, Silver, and Mercury.

Therapeutic Uses. Similar to those of Quassia.

2502. *In the advanced stages of Diarrhœa and Dysentery*, it is stated to be very efficacious. Whilst inflammation continues, it is not admissible; but when the fever has abated, if the tenesmus continue, with a weak and sinking state of the pulse, it allays this symptom, and also griping; it promotes the secretion of urine, determines to the surface, and restores the tone of the intestines. (A. T. Thompson.§) In Dysentery, it is highly spoken of by Dr. O'Brien ‖ and others.

* Trans. of Lond. Ph., 1851, p. 321.
† Lectures, vol. ii. p. 838.
‡ Diseases of the Skin, p. 158.
§ Dispensatory, p. 731.
‖ Trans. of Irish Col. of Physicians, vol. v. p. 221.

2503. SINAPIS. Mustard. The seeds of Sinapis Nigra and Sinapis Alba. *Nat. Ord.* Cruciferæ. *Linn. Syst.* Tetradynamia Siliquosa. *Source*, various parts of Europe.

Med. Prop. and Action. Mustard, in small doses, is stimulant; it improves the tone of the digestive organs, promotes the digestibility of many articles of food, and increases the appetite. Under its continued use, the secretion of urine becomes greatly augmented. In doses of from one to three teaspoonfuls it is emetic, effectually clearing out the stomach, without producing any great amount of subsequent depression. Externally applied in the form of poultice, it is irritant, and if left in contact with the skin for a long period, causes vesication (see *Sinapisms*). The activity of Black Mustard depends upon an acrid volatile oil, which does not exist in the seed, but is formed by the action of a peculiar albuminous substance, *Myrosine*, on an acid named *Myronic Acid*, both of which are contained in the seed, the latter in combination with Potash. Alcohol, Vinegar, and too hot water interfere with the production of the volatile oil, and therefore should not be used in the preparation of mustard poultices. White Mustard contains a crystallizable compound, *Sulphosinapisin*, which gives rise to an acrid principle. Both kinds contain from twenty-five to thirty-five per cent. of a fixed oil. (Garrod.*) Flour of Mustard, as usually met with, is composed of two parts of black and three of the white seed, with a portion of wheat flour and turmeric. It is an effectual and ready emetic in narcotic poisoning.

Offic. Prep. Cataplasma Sinapis (Mustard in powder oz. iiss.; Linseed Meal oz. iiss.; Boiling Water fl. oz. x. Mix gradually the Linseed Meal with the Water, and add the Mustard, constantly stirring. The Linseed Meal is mixed first with the Water, in order that the latter may have somewhat cooled before the addition of the mustard).

2504. *Therapeutic Uses. In Ebrietas, Paralysis, Epilepsy, and in Apoplexy* from over-distension of the stomach, and, indeed, in all cases when it is desirable to produce full emesis, with little expense to the strength or depression of the vital powers, the flour of Mustard, in doses of a tablespoonful or less, is a speedy and efficacious remedy. *In Cholera*, it was formerly employed as an emetic, but the selection of this remedy is injudicious; as an emetic, Ipecacuanha is preferable.

2505. *In Dyspepsia, and in the torpid state of the bowels which accompanies Paralysis*, white Mustard seeds, to the amount of two or three teaspoonfuls, two or three times a day, have been advised, but their utility is doubtful.

2506. *In Dropsical Affections*, Mustard, from its diuretic and stimulant quality, occasionally proves useful. It is best administered in the form of whey, made by boiling oz. ss. of the bruised seeds in Oj. of milk, and straining. This quantity may be taken daily in divided doses.

2507. *In Amenorrhœa*, Dr. Ashwell† states that he has often seen the Mustard hip-bath useful, the patient remaining in it for an hour each time. Pulv. Sinapis, in doses of gr. viij.—xij., repeated three or four times a day, just prior to the proper

* Ess. Mat. Med. and Therap., p. 163.

† On Diseases peculiar to Women, p. 109, et seq.

menstrual period, is stated to be often attended with good effect.

2508. *In Dysmenorrhœa*, the Mustard hip-bath is well spoken of by Dr. Ashwell.* It should be repeated three or four times a day, the patient remaining in it from thirty to sixty minutes, or even, if the pain be very severe, until faintness is induced.

2509. *In Uterine Discharges arising from Ulcerated Carcinoma*, Dr. Ashwell† found much benefit from the following vaginal injection:—℞ Pulv. Sinapis ʒij., Aq. Ferv. fʒxvj., M. This should be employed once a day, or two or three times a week, and should be of a strength to excite only a little tingling. It is particularly useful when the discharge is thin and ichorous.

2510. *Sinapisms, or Mustard Poultices*, are excellent counter-irritants, producing a certain and rapid effect. They are usually made with flour of Mustard, mixed to the consistence of a poultice with water or vinegar. There are a few points of importance to be noticed in their preparation. M. Faure has shown that the stimulating properties of the powdered seeds are not disengaged in hot water (190° F.), and that they are readily so in cold water; hence it follows that a sinapism, to be efficacious, should be made with cold water, and that in foot-baths the Mustard should be first mixed with some cold water, to which the hot water can be afterwards added. All liquids which coagulate albumen should also be avoided in the preparation of Mustard poultices and baths. (For the explanation of the action of hot water, &c., see *ante*.) These results agree nearly with those of Trousseau and Blanc.‡ They found that vinegar very much impaired the stimulant property of the common brown Mustard, in which the husk is mixed with the flour; that the English flour of Mustard was equally efficacious if mixed with water or vinegar; that it was less active if mixed with alcohol; and that cold water was the best and most efficacious fluid for its composition. Dr. Paris advises its mixture with the oil of Turpentine; but if it be desired simply to increase the stimulating effect of the poultice, the surest way is to add a small portion of bruised Capsicum or Cayenne pepper. In persons of delicate skins, as in women and children, it is advisable to place a piece of muslin between the poultice and the skin. If a sinapism is allowed to remain in contact with the skin above twenty or thirty minutes, it may cause vesication; this should always be avoided, as the ulcers which result are extremely difficult to heal, and sometimes assume a gangrenous appearance. It should be removed when it causes great pain.

2511. In all *Inflammations of Serous and Mucous Membranes*,

* On Diseases Peculiar to Women, p. 109, et seq.

† Ibid.

‡ Archiv. Gén. de Méd., Sept. 1830.

where the inflammatory action is not severe, or where the patient will not bear more active treatment, sinapisms, or poultices of linseed meal, or bread containing Mustard, are valuable counter-irritant applications. In the treatment of inflammatory attacks in children, they often prove of the greatest service.

2512. *In Apoplexy, Delirium, Coma, Paralysis, Congestive Headaches, and in Cerebral Affections occurring in the course of Fevers*, sinapisms, to which have been added Chillies or oil of Turpentine, may in most instances be applied with evident advantage, to the soles of the feet and the inner parts of the calves and thighs. Their action is that of a speedy and powerful derivative.

2513. *In Cholera, Colic, Colica Pictonum, Ileus, and in Spasmodic Affections of the Bowels, unattended by Inflammation*, a strong Mustard poultice over the whole surface of the abdomen affords, in most cases, a great amount of relief. *Gastrodynia* is also often much benefited by its application.

2514. *In continued and other Fevers, when they assume a Typhoid character*, and particularly when complicated with head affections, the application of Mustard poultices to the extremities, acting as a revulsive and stimulant, proves often of great service, restoring the vital powers in a remarkable manner. *In Puerperal Typhus*, Prof. Osiander * states that the application of large Mustard poultices to the mammæ, so as to excite a powerful revulsion from the uterus, has in several instances seemed to act more beneficially than any other means which he has employed.

2515. *In Gout*, the application of a Mustard poultice to the inflamed part often affords speedy and evident relief. Prof. Graves † mentions three cases in which it proved successful. *In retrocedent Gout*, a sinapism placed over the originally affected part, or to the extremities, is occasionally effectual in causing the disease to reappear in its former, or in a less dangerous locality.

2516. *In Coughs attended with much Dyspnœa*, a sinapism to the chest often affords relief. *Hooping-Cough* is often benefited by sinapisms to the spine. *In the Bronchitis of Typhus Fever*, an emetic of Mustard, observes Dr. Murchison, ‡ is said to act sometimes like a charm, by promoting copious expectoration, and allowing free ingress of air into the bronchial tubes, so as to save the patient from impending suffocation.

2517. *In Inflammation of the Tonsils*, Dr. Macartney § states

* Med.-Chir. Rev., vol. lx. N. S.
† Dub. Journ., Jan. 1839.
‡ On Fevers, 1862, p. 283.
§ On Inflammation, p. 167.

that sinapisms to the throat are very useful in removing the inflammation.

2518. *In Toothache, Faceache, and Neuralgic Affections of the Head and Face,* a Mustard poultice over the seat of pain often affords great relief.

2519. *In removing symptoms indicative of a congested state of the spinal Meninges,* Drs. Ballard and Garrod* state that they have found their application to the spine, repeated every night for several weeks, very effectual.

2520. *In Amenorrhœa,* the application of sinapisms to the mammæ, a short time before the arrival of the usual catamenial period, has been advised by Drs. Mondiere,† Jones,‡ Patterson, and others. The intimate connection between the mammæ and the uterus suggested their use; and in some cases they appear to have been effectual, but sufficient data are wanting to establish their real therapeutic value. As corroborative evidence, it may be stated that Dr. Loudon succeeded in producing the discharge by leeches to the breasts; and Sir J. Murray, by the application of cupping-glasses to these organs.

2521. SMILACIN. Called also Pariglin, Salseparin, and Parallinic Acid. A peculiar principle obtained from the various kinds of Sarsaparilla.

Med Prop. and Action. According to Palotta,§ it acts as a depressent in doses of gr. ij.—xiij. He found it reduce the circulation, cause constriction of the œsophagus, and excite nausea and diaphoresis. Cullerier‖ gave it to nine *Syphilitic* patients. In doses of gr. vj. the stomach readily supported it; but gr. ix. caused weight of the stomach and nausea. It appeared to relieve the symptoms, and in one case effected a cure. (Pereira.)

2522. SODA CAUSTICA. Caustic Soda. Hydrate of Soda. NaO, HO. Made by boiling down a solution of Soda to a fluid of an oily consistence, which is to be poured on a clean silver or iron plate, and allowed to solidify. It is then broken in pieces, and should be preserved in a green glass stoppered bottle.

Med. Prop. and Action. Caustic and escharotic. It is used in the same manner, and applicable to the same cases as Potash. It is, however, less deliquescent, and therefore more manageable, although probably not so powerful, as Potassa Caustica.¶ Liquor Sodæ possesses similar medicinal properties to Liquor Potassæ. It is antacid, and acts as a direct sedative to the stomach. There seems, however, to be good evidence that, whilst the preparations of Potash affect the secretion of the kidneys, those of soda influence that of the liver.** Hence, in the treatment of *certain forms of Dyspepsia connected with biliary derangement,* the Liq. Sodæ or the Carbonates of

* Mat. Med., p. 182.
† Med.-Chir. Rev., Nov. xliv. p. 511.
‡ Lancet, May 1835.
§ Journ. de Pharm., t. x. p. 543.
‖ Journ. de Chir. Méd., t. i. p. 45.
¶ Garrod, Ess Mat. Med., p. 118.
** Garrod, Med. Times and Gaz., April 9.

Soda may be advantageously substituted for the analogous preparations of Potash.

Offic. Prep. Liquor Sodæ (prepared by decomposing Carbonate of Soda dissolved in water with slaked lime. Carbonate of Lime is precipitated, and Soda remains in solution. Sp. gr. 1·047). Dose, ♏x.—fl. drm. j., freely diluted.

2523. SODÆ ACETAS. Acetate of Soda. $NaO, C_4H_3O_3 + 6$ HO. A compound of Soda 22·8, Acetic Acid 37·5, Water 39·7, in 100 parts; or 1 Eq. Soda = 31, + 1 Acetic Acid = 51, + 6 Water = 54 = 136, Eq. Wt.

Med. Prop. and Action. In doses of gr. xx.—gr. lx., diuretic; gr. lx.—gr. ccxl., purgative. It is rarely used, but may be substituted for the Acetate of Potash, over which it has the advantage of not being deliquescent, but, according to Dr. Garrod, it is less powerful as a diuretic.

2524. *Therapeutic Uses. In Calculous Diseases, as a solvent for Phosphatic Calculi*, the Acetate of Soda is highly spoken of by Dr. R. Willis,* and his recommendation is supported by Prof. Scharling.† Dr. Willis advises a solution of the salt to be injected into the bladder. In uric or lithic acid deposits, it is inferior to Borax.

2525. SODÆ ARSENIAS. Arseniate of Soda. 2 NaO, HO, AsO_5 + 14 HO or 24 HO.

Med. Prop. and Action. The same as those of Arsenious Acid, or Liq. Arsenicalis, but less irritating. Arseniate of Soda has been long used on the Continent, and a solution of it has been known and prescribed in this country under the name of Pearson's Solution, a preparation containing one grain of the Arseniate to ten fluid drachms of Water. Dr. Garrod‡ observes that Arsenic in its highest state of oxidation (AsO_5) is closely analogous to Phosphoric Acid (PO_5), a compound which exists largely in the body. We may therefore suppose that it is less likely to prove irritating than in the condition of Arsenious Acid, which is one of lower oxidation. That such is the case he found by clinical experiments. In several instances where Liq. Arsenicalis produced constitutional disturbance, evidenced by nausea, irritation, and swelling of the eyelids, &c., he found that the Arseniate of Soda in corresponding doses was borne without the slightest discomfort, whilst it appeared to exercise all the curative powers of Arsenic. He concludes that the Arseniate of Soda is less irritating than the Arsenite when the amount of Arsenic given is the same.§

Offic. Prep. Liquor Sodæ Arseniatis (Arseniate of Soda, rendered anhydrous by a heat not exceeding 300°, grs. iv.; Distilled Water fl. oz. j. Dissolve). The salt is ordered to be dried in order to avoid the possibility of error arising from the different quantities of water with which the salt crystallizes. The amount of Metallic Arsenic in the solution of the Arseniate of Soda is to that in the Solution of Arsenite of Potash in the proportion of 1 to 2, or as 99 to 186 (Garrod).‖ Dose, ♏iv.—♏x., or more.

Dose of crystallized Arseniate of Soda, gr. $\frac{1}{12}$—gr. $\frac{1}{4}$; of the salt dried at 300°, gr. $\frac{1}{24}$—gr. $\frac{1}{8}$.

* On the Treatment of Stone in the Bladder, 8vo, 1842.

† On the Chemical Discrimination of Vesical Calculi, 1843.

‡ Med. Times and Gaz., March 12 1864.

§ Ibid.

‖ Ibid.

2526. Borax. Borax. Sodæ Biboras. Biborate of Soda. NaO, 2 BO_3 + 10 HO. Called also the Borate or Subborate of Soda. *Comp.* Soda 16·23, Boracic Acid 36·65, Water 47·12, in 100 parts; or 1 Eq. Soda = 31, + 2 Boracic Acid = 70, + 10 Water = 90 = 191, Eq. Wt.

Med. Prop. and Action. Refrigerant, diuretic, and emmenagogue. It has also been employed as a solvent for calculi. Dr. Binswanger,* who has examined the properties of this salt, draws the following conclusions:—1. Its action is very similar to that of the Carbonate of Soda; like it, it has an alkaline reaction, it acts as an antacid, and, when in solution, it absorbs carbonic acid, and dissolves fibrine, albumen, caseine, and uric acid. Swallowed in large doses, it occasions oppression of the stomach, nausea, and vomiting. It becomes absorbed into the system, and is afterwards eliminated by the kidneys, and other secreting organs. It was detected in the blood of the portal vein, in the bile, and in the saliva, and has, therefore, probably, an influence on the process of chymification. If taken in large and repeated doses, it produces the same injurious effects as the other alkalies—deranged digestion, a scorbutic condition of the body, and sometimes an impetiginous eruption. 2. It has no specific power of exciting uterine contractions, of promoting menstruation, or of curing aphthous ulceration; though, like the carbonated alkalies, it may, by relaxing muscular fibre, slightly relieve spasm of the uterus; or, by its liquefacient properties, promote evacuation of the menstrual fluid; or, by its mild alkaline qualities, improve the condition of the skin and mucous surfaces. Its power as a solvent of calculus is very great. Externally applied, it is a mild and efficient detergent.

Offic. Prep. Mel Boracis (finely powdered Borax grs. lxiv.; Clarified Honey oz. j. Mix). Used as an application to aphthous conditions of the tongue and throat.

Dose of Borax, gr. xx.—lx.

Incompatibles. Most Acids; Potash; Ammonia; the Sulphates, Muriates, and Phosphates of earths; the Chlorides of Magnesia and Lime.

2527. *Therapeutic Uses. In Aphthæ and Aphthous Ulceration of the Mouth*, the Mel Boracis is a popular and efficient application. Dr. Watson† advises equal parts of this linctus, incorporated with Syrup of Poppies, as a good form, antacids being given internally at the same time. *In the Aphthous Ulceration which attends the advanced stages of Phthisis*, he states that he has employed it with advantage. *In Cracked Tongue*, Dr. Brinton‡ found the following formula peculiarly serviceable:—℞ Sodæ Bibor. ʒij., Glycerini f℥j., Aq. f℥iv., M. ft. applicatio.

2528. *In Uterine Affections*, Borax has long been esteemed by the German physicians; but it was not employed in British practice until it was introduced a few years since by Dr. Copland,§ who appears to place much dependence upon its efficacy. Dr. Rigby‖ observes that it seems to possess a peculiar power in exciting the activity of the uterus, and that he has employed the following formula in *tedious Labours, where there is deficiency of Uterine contractions*, with the best effect:—℞ Ergotæ ʒj.—ʒij.,

* Prize Essay, 1848, quoted by Pereira, vol. i. p. 572.

† Lectures, vol. i. p. 802.

‡ Dublin Med. Press, April 22, 1857.

§ Dict. Pract. Med., various articles.

‖ System of Midwifery, p. 209.

Sodæ Bibor. gr. x., Aq. Cinnam. fʒiss., M. ft. haust. Dr. Tyler Smith* speaks of it as a remedy of minor power in controlling *Uterine Hæmorrhage*. He considers that it is absorbed into the blood, and that through this channel it acts upon the spinal cord, and the nerves of the uterus. *In Chlorosis*, Dr. Copland advises the following formula :—℞ Sodæ Biboratis ℈ij., Sulphur. Præcip. ʒj., Mucilag. Arab. q. s. ft. pil. xxiv., cap. iij. ter quotidie. *In Amenorrhœa*, he prefers the subjoined pills :—℞ Sodæ Bibor. ʒss., Aloes Socot., Pulv. Capsici āā ℈j., Ol. Lavand. q. s. ft. pil. xviij., cap. ij. ter quotidie. *In Dysmenorrhœa*, it has also been given with advantage, combined with Ext. Belladonnæ. *In Puerperal Diarrhœa*, if the lochia be suppressed, and *in Puerperal Convulsions*, if the os uteri be rigid and undilated, Dr. Copland advises the Biborate, in doses of ℈j.—ʒss. It may, in these cases, prove a useful adjunct to other measures, but it should not be trusted to alone.

2529. *In Pruritus Pudendi Muliebris*, Dr. Dewees† speaks in the highest terms of the efficacy of a strong solution of Borax. He mentions several cases in which it produced speedy and unequivocal benefit; and adds, that in his hands it has rarely failed. In obstinate cases, he found depletion add much to the influence of the salt. It is particularly indicated when an aphthous efflorescence is present. The solution should not only be applied externally, but should be freely injected into the vagina three or four times a day. *In Pruritus Scroti et Ani*, it also affords great relief.

2530. *Calculous Disease. As a solvent for Uric or Lithic Acid Calculi*, Borax was advised by Dr. R. Willis,‡ in 1842. He found that a solution of gr. iv. in Aq. fʒj. dissolves a larger quantity of Urid Acid deposits than the same quantities of the carbonates of other alkalies, whilst a more concentrated solution was less effectual. He considers that this circumstance, and its sedative effects upon mucous membranes generally, render it peculiarly suitable for injection into the bladder. This view is confirmed by the more recent observations of Binswanger,§ who considers that though its solvent power is inferior to that of the Carbonate of Lithia, yet, from the rarity of the latter salt, it is more generally useful and available. It is supposed to act by yielding part of its soda to form a soluble urate of Soda, which is readily eliminated by the secretions. It has no power to prevent the formation of this acid; it merely acts as a solvent for that which is already formed.

2531. *In Gangrenous Bubo*, Dr. Effenberger‖ has successfully

* Lancet, Dec. 16, 1848.

† On Diseases of Females, 6th Ed., p. 47, et seq.

‡ On the Treatment of Stone in the Bladder, 8vo, Lond. 1842.

§ Op. cit.

‖ Lond. Journ. of Med., April 1851.

employed a solution of Borax (ʒj.—ʒij. ad Aq. Oj.). Of fifty cases treated, not one died, although some were very severe. The solution was applied by means of charpie, so as to cover the edges of the sore. It is essential that the dressing should be renewed frequently, by night and day.

2532. *In Leucorrhœa and Gonorrhœa*, an aqueous solution of the Biborate (gr. x.—xv. ad Aq. ℥. oz. iij.) has occasionally been used as an injection with benefit.

2533. *In Dropsy*, Dr. Copland* regards Borax as a useful adjunct to other deobstruents and diuretics, and furnishes the following forms for its exhibition :—1. ℞ Antim. Pot. Tart. gr. j., Potass. Bitart. ʒiss., Sodæ Bibor. ʒss., Infus. Juniperi fʒxiiss., Spt. Ether. Nit. fʒiij., T. Camph. Co. mxxv.—1., M. cap. coch. amp. j. 2dâ quâque horâ; or 2. Potass. Bitart. ʒj., Potas. Nit., Sodæ Bibor. āā ʒij., Pulv. Fol. Digitalis ℈j.; mix well, and divide into xij. powders, one to be taken twice or thrice daily.

2534. *In Epilepsy*, the Biborate of Soda is, according to Dr. Copland,† sometimes serviceable, either given alone in doses of gr. x.—xv., or in conjunction with Camphor, Valerian, Aloes, &c. Its use is confined to those cases in which the disease is connected with uterine derangement.

2535. *In Acne Simplex*, Dr. Copland‡ states that the lotion from which he has derived the greatest benefit, and which he has found most generally applicable, is a solution of the Biborate in rose or elder flower water, or in water which has been poured in the boiling state over sulphur, and allowed to infuse for ten or twelve hours. He advises the same lotion in *Ecthyma*. *In Eczema*, he prescribes it with much benefit, internally, with or without the Nitrate of Potash; it should be given with emollients, and after the bowels have been evacuated.

2536. *To sore Nipples*, Sir Astley Cooper§ advises the following application :—℞ Sodæ Bibor. ʒj., Spir. Vin. Rect. fʒss., Aquæ fʒiiiss., M. This, applied thrice daily, has been found very serviceable. Dr. Hannay‖ prefers a saturated solution of Borax to be applied to the nipple before and after suckling the infant.

2537. *To Chloasma or Liver-spots*, Dr. Pereira¶ states that a solution of Borax (ʒss. ad Aq. fʒviij.) is a most valuable application; it should be applied by a sponge or rag to the affected spots. I have found a similar lotion very effectual in allaying the itching in *Urticaria*, *Psoriasis*, *Impetigo*, &c.

2538. *In Mercurial Salivation*, an aqueous solution with or without honey forms a useful gargle.

* Dict. Pract. Med., vol. i. p. 620.
† Ibid., p. 80.
‡ Ibid., p. 30.
§ On Diseases of the Breast, 4to, Lond. 1829.
‖ Lond. Med. Gaz., vol. xiv. p. 674.
¶ Mat. Med., vol. i. p. 573.

2539. SODÆ BICARBONAS. Bicarbonate of Soda. Sodæ Sesquicarbonas. The Sesquicarbonate of Soda. (The Carbonate of the shops.) NaO, HO, $2Co_2$. *Comp.* Soda 36·90, Carbonic Acid 52·38, Water 10·71, in 100 parts; or 1 Eq. Soda = 31, + 2 Carbonic Acid = 44, + 1 Water = 9 = 84, Eq. Wt.

Med. Prop. and Action. Antacid, alterative, and lithontriptic. When taken in large and long-continued doses, it causes derangement of the digestive organs and of the assimilating functions, and induces a state of the constitution resembling that accompanying scurvy (see ALKALIES). It is frequently employed in making effervescing draughts; thus, gr. xx. of this salt saturates gr. xviij. of Tartaric Acid, or gr. xvij. of Citric Acid, or fl. drs. iv. of Lemon-juice.

Dose, gr. x.—gr. lx.

Incompatibles. Acids and Acidulated Salts, Earthy and Metallic Salts, the Hydrochlorate of Ammonia.

2540. *Therapeutic Uses. In Acidity of the Primæ Viæ*, great relief may be afforded by the administration of gr. x.—xv. of the Bicarbonate of Soda in some aromatic water, four or five hours after a full meal. *In Cardialgia and Flatulence* arising from the same cause, it also proves very effectual. (See also ALKALIES.) *In the Aphthæ of Children*, it often proves effectual combined with a few grains of Rhubarb or Hydrargyrum c. Cretâ.

2541. *Calculous Disease. In the Lithic or Uric Acid Diathesis*, alkalies are clearly indicated, and are often productive of great temporary benefit. As a rule, the Bicarbonate of Potash is a preferable remedy, as the Urate of Soda is a much less soluble salt than the Urate of Potash. Dr. Prout prefers Potash; but Dr. Marcet* employed successfully the Carbonate of Soda, in doses of ʒiiss. daily; and it may be observed that the waters of Vichy, which have obtained great celebrity from their known solvent powers of calculous concretions, are almost entirely composed of Soda. The French Codex gives a formula for this celebrated water. It is made of simple acidulous water, impregnated with twice its bulk of Carbonic Acid fʒxxss., Subcarbonate of Soda gr. xxxij., Sulphate of Soda gr. xvj., Chloride of Sodium gr. iv., Subcarbonate of Magnesia gr. ½, Chloride of Iron gr. ¼, M.

2542. *Biliary Concretions. In the severe pain attendant on the passage of Gall Stones*, Dr. Prout† states that he has seen more immediate alleviation afforded by large draughts of hot water, containing the Carbonate of Soda in solution (ʒj.—ʒij. ad Aq. Oj.), than by any other means. The alkali counteracts the distressing symptoms produced by acidity of the stomach, while the

* Med.-Chir. Trans., vol. v.

† On Stomach and Renal Diseases, p. 257.

hot water acts like a fomentation to the seat of pain. The first dose or two will be rejected, but it should be persevered in, and a few drops of Laudanum may be added if necessary.

2543. *In Cholera*, the Carbonate of Soda forms one of the principal ingredients employed by Dr. Stevens,* in what is called the saline treatment. His formula was :—℞ Sodæ Carb. ʒss., Sodii Chlorid. ℈j., Potas. Chlorat. gr. vij., M.; dissolve in half a tumblerful of water, and repeat at intervals of from fifteen minutes to an hour, according to circumstances. Salines were at the same time administered in enemas. Great expectations were formed of this treatment; but it does not appear to have answered as well as was anticipated.

2544. *In Diarrhœa, depending upon Acidity of the Stomach*, the Carbonate of Soda, by removing the cause, is often productive of much benefit; this is particularly the case in infants. Dr. Willshire† prescribes the following formula :—℞ Pulv. Rhei gr. ij., Pulv. Ipecac. gr. j., Sodæ Carb. gr. iv., M. ft. pulv.

2545. *The Vomiting of Pregnancy* may often be arrested by the Carbonate of Soda (gr. x.—xv.) with a few drops of T. Opii or T. Hyoscyam., or T. Cardam. Co.

2546. *In Dry Catarrh*, much benefit is often derived from alkalies, particularly from Sodæ Carb. It is supposed to act by attenuating the secretions, and rendering them more liquid. Laennec, who speaks highly of alkalies in these cases, administered this salt in doses of gr. xij.—gr. xxx. daily. Salt water and alkaline baths should be employed at the same time. The Liq. Potassæ is generally preferable. (See Liq. Potassæ.)

2547. *Neuralgia, connected with Acidity of the Primæ Viæ* (a very common cause), may often be removed by the administration of mild alkalies. In severe paroxysms of pain, Dr. Theophilus Thompson‡ states that he has known decided relief produced in a few minutes by the use of a few grains of Sodæ Carb.

2548. *In Acute Rheumatism*, Dr. Wright,§ of Birmingham, states that he has found no remedy so generally efficacious as the mild alkalies, particularly the Carbonate of Soda. He advises it externally, in the form of bath (℥ij. to the bath), and internally, in the following form :—℞ Sodæ Carb. ʒij., Mist. Camph. f℥viij., M. sumat. coch. amp. ij. 3tiis horis. He relates several cases illustrative of the efficacy of this treatment, and considers that it

* On the Healthy and Diseased Properties of Blood, 1832, p. 459.

† Lectures on the Diseases of Children, Med. Times, vol. xvi.

‡ Lib. of Med., vol. ii. p. 272.

§ Clin. Lect., Med. Times, June 1847.

acts by correcting the acidity which always exists in rheumatic attacks.

2549. *In Purpura Hæmorrhagica*, the following formula, proposed originally by Dr. Stevens,* has been found useful:—℞ Sodæ Carb. ʒss., Sodii Chlorid. ℈j., Potas. Chlorat. gr. vj., M. ft. pulv. ter in die sumend. ex aquâ.

2550. *In Diseases of the Skin*, particularly in those of a papular and scaly character, M. Devergie† has extensively employed the alkalies, both internally and externally. The Bicarbonate of Soda is the one chiefly used, the corresponding salt of Potash being found more caustic and irritant. Internally, the dose is gr. xv. daily, in some bitter infusion, or in Syrup (ʒss., Syr. Simp. fʒviij.); and this quantity is augmented gr. viij. every third day, until ʒj. is taken in the twenty-four hours. This is the maximum quantity. Externally, he employs lotions, baths, powders, and ointments. The baths are to contain each from ʒviij. to ʒxvj. of the Carbonate, either of Soda or Potash. The lotions contain ʒij.—ʒiij. of the salt in Oj. of water; and are employed chiefly in *Eczema and Impetigo of the Scalp*. The alkaline powder (1 part of Soda, 10 of Starch) is used principally as a depilatory, in *Tinea and Sycosis Menti*. The ointments are of various strengths, according to the nature of the disease; thus, in *Lichen and in its various forms*, the strength is gr. viij.—xv. to ʒj. of Lard; in *Lepra, Psoriasis, and Ichthyosis*, gr. xv.—ʒss. to ʒj.; and in *Porrigo Favosa*, ʒss.—ʒj. to ʒj., with a grain or two of Quick-lime. In *Porrigo Larvalis*, lotions containing this salt have been found highly serviceable.

2551. *In Albuminuria*, Dr. Osborne‡ advises the internal use of the alkalies. Alkalescence, he observes, is a necessary condition of the blood, and that the free alkali is Soda, and that when the Soda fails, either from a deficient supply, or from want of power to decompose the Chloride of Sodium in the stomach, the result will be coagulation of the blood in the capillary vessels, and phenomena of inflammation in those parts in which such coagulation takes place; and that Potash or Soda taken into the stomach, either uncombined or as carbonates, have the power of rendering the urine alkaline and of dissolving fibrine. On these grounds, he reasons that, when in any disease the kidneys contain fibrinous deposits, alkalies should be given. He employs the following:—℞ Sodæ Carb., Liq. Potassæ āā ʒij., Decoct. Chondri Crisp. fʒviij. Dose, a tablespoonful every two hours, in milk. When anæmia is very marked, he adds the Tartrate of Iron.

* Op. cit.
† Journ. de Pharm., Jan. 1846.
‡ Dub. Quart. Journ., Aug. 1851.

2552. Sodæ Carbonas. Carbonate of Soda. $NaO, CO_2 + 10\ HO$. Called also the Subcarbonate and Monocarbonate of Soda. Neutral Carbonate of Soda. *Comp.* 1 Eq. Soda = 31, + 1 Carbonic Acid = 22, + 10 Water = 90 = 143, Eq. Wt.

Med. Prop. and Action. Antacid and deobstruent; in large doses it is an irritant poison. It is more irritant than the Bicarbonate of Soda, and is more analogous in its effects to the Carbonate of Potash. It is sometimes used in making effervescing draughts; thus gr. xx. of the salt saturates gr. ixss. of Citric Acid, gr. xss. of Tartaric Acid, or fl. drs. iiss. of Lemon-juice.

Offic. Prep. Sodæ Carbonas Exsiccata (Dried Carbonate of Soda. The Salt deprived of its water of crystallization). Dose, gr. v.—gr. xv.

Dose of Carbonate of Soda, gr. x.—gr. xxx.

Therapeutic Uses. Similar to those of Potassæ Carbonas.

2553. Liquor Sodæ Chloratæ. Solution of Chlorinated Soda. Solution of the Chloride or Hypochlorite of Soda. Labarraque's Disinfecting Solution of Soda. A mixed Solution of Hypochlorite of Soda, NaO, ClO, Chloride of Sodium, and Bicarbonate of Soda. Sp. gr. 1·03. On the addition of an acid, it evolves Chlorine freely.

Med. Prop. and Action. Stimulant, tonic, and antiseptic. Externally, it is a stimulant, astringent, and deodorizer; it is best appliod in the form of lotion (fl. drm. j. ad Aq. fl. drs. x.—fl. drs. xv.). As a deodorizer it is of great value, and is eminently useful in correcting and destroying the unpleasant smells, so common in sick rooms, &c.; it is also represented as a disinfectant, but it is far from satisfactorily proved that it possesses the alleged property of arresting the progress of any infectious disease. *It is an antidote in poisoning by Hydrosulphuric Acid, Hydrosulphuret of Ammonia, the Sulphuret of Potassium, and Hydrocyanic Acid.* A solution should, if possible, be administered by mouth, and a sponge soaked in the solution should be held to the nostrils. If a person, observes Dr. Pereira,* be required to enter a place suspected of containing Hydrosulphuric Acid, a handkerchief moistened with a solution of the Chloride should be applied to the mouth and nostrils, so that the inspired air may be purified before it passes into the lungs.

Offic. Prep. Cataplasma Sodæ Chloratæ (Solution of Chlorinated Soda fl. oz. ij.; Linseed Meal oz. iv.; Boiling Water fl. oz. viij. Add the Linseed Meal gradually to the Water, stirring constantly; then mix in the Solution of Chlorinated Soda). Used to correct the fœtor of unhealthy or sloughing wounds, and as a stimulant application.

Dose of Liquor Sodæ Chloratæ, ℥x.—℥xxx., diluted with fl. oz. j.—fl. oz. iss. of water.

2554. *Therapeutic Uses. In Aphthous Ulceration of the Mouth in Children*, when it assumes a sloughing character, Dr. A. Robertson† states that the following is one of the best applications which can be used:—℞ Liq. Sodæ Chlor., T. Myrrhæ āā f℥ss., Aq. Rosæ f℥j., Aq. f℥vj., M. *In Mercurial Salivation, in the Ulcerated Gums of Scurvy, in fetid discharges from carious Teeth, in the Sore Throat of Scarlatina, and in all affections of the Mouth attended with a fetid discharge*, and requiring a mild

* Mat. Med., vol. i.

† Cyc. Pract. Med., vol. i. p. 120.

stimulant application, the diluted solution (fl. drs. vj. ad Aq. fl. oz. xij.) proves highly serviceable, not only correcting the fœtor, but establishing a healthy action. *In Diphtheria*, Dr. W. Budd* considers Beaufoy's solution of Chlorinated Soda superior to all other applications. He directs the throat to be thoroughly mopped with it, by means of a camel's-hair brush, three or four times daily. He speaks strongly in its favour both as a curative and as a sanitary agent.

2555. *In Ozœna, Coryza, and Otorrhœa*, when the discharge is fetid, a diluted solution (mxv.—mxxx. ad Aq. fl. oz. j.) proves highly useful. It should not be used so strong as to cause pain. Dr. Heron† (U.S.), who testifies to its value in Ozœna, advises it to be injected while the head is held downward and forward, the breath being at the same time drawn through the nostrils; the fluid is thus brought into contact with the whole of the diseased surface, where it may be retained as long as is necessary.

2556. *In fetid discharges from the Vagina, whether proceeding from an ulcerated state, or from Cancer of the Uterus, or from other causes*, a diluted solution (fl. oz. j. ad Aq. fl. oz. xvj.), used tepid or cold, according to the sensations of the patient, forms an excellent injection. It should be of a strength to cause slight tingling, without pain. It is equally applicable to *fetid discharges from the rectum*.

2557. *When Ulcers assume a phagedenic or sloughing character, or when they are attended by a profuse and fetid discharge*, a diluted solution (fl. oz. j. ad Aq. fl. oz. viij.) may be applied with great advantage. Linseed-meal poultices, to which the solution is added (Cataplasma Sodæ Chloratæ, *ante*), also prove useful.

2558. *In Typhus and Typhoid Fevers, in Scarlatina Maligna, and in the advanced stages of all Fevers and the Exanthemata, when they assume a Typhoid type*, the Chlorinated Soda is a most valuable medicine. "It may be given," observes Dr. Copland,‡ "early in the putro-adynamic variety, when excitement is imperfect or low, and the skin discoloured, or petechiæ are appearing, and may be continued throughout the disease. But when vascular reaction is considerable, or local determination prominent, particularly in the nervous and exanthematous varieties, this medicine should be withheld until these states are subdued, or about to lapse into the nervous stage. At first, it ought to be prescribed in small doses, so as not to offend the stomach, in from x. to xv. drops of the solution, every three or four hours, in Camphor Julep, or in an aromatic water. As the

* British Med. Journ., June 1, 1861.
† U. S. Med. Surg. Journ., Oct. 1835.
‡ Copland's Dict. Pract. Med., vol. i. p. 1333.

disease passes into a state of exhaustion, or of manifest putro-adynamia, or when there are a lurid skin, low muttering delirium, stupor, black sordes on the tongue, teeth, &c., the supine posture, unconscious offensive evacuations, petechiæ, a disposition to gangrene in parts pressed upon, coma, &c., it should be given in larger doses, or, more frequently, with Camphor, Serpentaria, or other stimulants and tonics. It is productive of great benefit in such cases, but it should be commenced before these symptoms appear, and should be persisted in, as its good effects are seldom manifest in less than three or four days or more, and it should not supplant the use of Wine, Opium, suitable nourishment, and other means which the case may require. It should also be frequently administered in enemata, and the surface of the body ought to be often sponged with a stronger solution of it in warm water, with the addition of Camphor." M. Chomel and Dr. Graves bear testimony to its value. "It acts first," continues Dr. Copland, "on the tissues with which it is brought in contact, as a gentle stimulant and antiseptic, and is most probably partially decomposed in the digestive organs, and reduced to the state of common salt. In this state it is carried into the circulation, where it supplies the waste of substance that has taken place in the early stage of the disease."

In Scarlet Fever, Dr. Watson* advises a weak solution of the Chloride of Soda as a gargle; and if the disease occur in a child that is not able to gargle, the solution may be injected into the nostrils, and against the fauces, by means of a syringe or elastic bottle. The effect of this application is sometimes most encouraging; a quantity of offensive sloughy matter is brought away, the acrid discharge is rendered harmless, the running from the nose and the diarrhœa cease, and the whole disease is rendered milder.

2559. *Intermittent Fevers.* In a memoir presented to the Academy of Sciences of Paris, by Drs. Lalesque and Gouzée,† in 1835, it was stated that the Chloride (Hypochlorite) of Soda possessed as active and as certain febrifuge properties as Quinine, and that it was an eligible substitute for that alkali. A committee was appointed to examine the question, and the results of the inquiry are thus summed up:—1. The Chloride of Soda actually possesses febrifuge properties. 2. It is far from producing the certain and energetic effects of Quinine. 3. It cannot, therefore, replace that article in severe intermittents. 4. It is not irritant. 5. It may be had recourse to in mild cases with advantage. 6. The diminution of the intensity of the paroxysms during its use augurs favourably, but does not always announce an approaching cure. 7. It exercises a favourable influence over engorgements of the spleen. 8. The ordinary pre-

* Lectures, vol. ii. p. 822.

† Revue Médicale, Feb. 1836.

scription has been ʒss. of the Chloride dissolved in fʒiv. of water daily. The patients have taken this quantity, so that the last dose should be administered shortly before the expected paroxysm.

2560. *In the Mesenteric Affections of Children*, Dr. Nevins* states that he has found the solution, in doses of ɱv.–x., with Catechu or Rhubarb, very effectual in correcting the diarrhœa, and the offensive character of the stools.

2561. *In Syphilitic Eruptions of the Scalp, Lepra, Psoriasis, Lichen, Eczema, and Impetigo*, Mr. Acton† employs, in the early stage, a diluted solution of the Chloride. The parts should be first well moistened with this, then carefully dried and sprinkled over with finely-powdered Calomel. Under this treatment, he states that the eruptions rapidly disappear. *In the non-Syphilitic* forms of these affections, as well as in *Pruritus and Tinea Capitis*, the diluted solution (fʒvj. ad Aq. fʒxij.) has been found useful. Dr. Todd‡ found it highly serviceable in *Ecthyma Febrile*.

2562. Sodæ Hypophosphis. Hypophosphite of Soda.
Potassæ Hypophosphis. Hypophosphite of Potash.
Calcis Hypophosphis. Hypophosphite of Lime.

Med. Prop. and Action. These are the principal "Alkaline Hypophosphites" which have of late years been introduced into medical practice; and as they are closely allied in medical properties and uses, they may be conveniently considered together. We must premise, however, that there is a great discrepancy in the accounts given by observers as to their therapeutical value. On the whole, the balance of evidence appears to prove that their medicinal power has been greatly overrated. The stimulant, tonic and alterative properties which they have been alleged to possess in common, are supposed to be due to the phosphorus which they contain. According to Dr. J. F. Churchill, who has brought them prominently into notice, they increase the nervous force, and are powerful hæmatogens, possessing all the therapeutic properties of phosphorus, without the danger attending its use. A Hypophosphite, it is asserted, is the most soluble, in all the animal secretions, of all the oxides of phosphorus, and is at once admitted into the venous system. If *pure* Hypophosphite of Potash or Soda, in doses of even two grains, be given, it excites a feeling of nausea and a slight pain in the chest, much increased by repetition of the dose. It is, therefore, well to combine the salt with a mild tonic, as Tincture of Gentian, or an anodyne, as a little Morphia, otherwise a genuine Alkaline Hypophosphite is repulsive to the nerves of the stomach, and the patient refuses to take a second dose. The following are some of the formulæ employed by Mr. Taylor§:—℞ Potassæ Hypophosph. ʒss.; Spt. Lavand. Co. fʒss.; Aq. Cinnam. fʒvj.; M., coch. amp. j. ter in die. ℞ Potassæ Hypophosph. ℈j.; Tinct. Gent. Co. fʒss.; Aq. Menth. Pip. fʒvij.; M., coch. amp. j. ter in die. As a general rule, the Soda Hypophosphite should be given in blood diseases; and that of Soda, Ammonia, or Lime, in those of the secretory organs. (Taylor.§)

Dose of the Hypophosphite of Soda, Potash, or Lime, gr. ij.—gr. xv., in a bitter infusion.

2563. *Therapeutic Uses. In Phthisis*, the Alkaline Hypophosphites were introduced by Dr. Churchill as *curative* in every

* Trans. of Lond. Pharm., p. 537.
† Lect. on the Venereal Disease, Lancet, 1848.
‡ Cyc. Pract. Med., vol. i.
§ Lancet, Nov. 30, Dec. 7, and Dec. 14, 1861.

stage; the word *palliative* would, according to Mr. Taylor, be more in accordance with fact. Mr. Taylor believes that in the earlier and middle stages they act as a respiratory excitant; as a pyrogenic, increasing animal heat and nervous force, and removing erratic pains; and as a hæmatogen, forming a nucleus for the rallying of red globules. He finds that they tend to increase the appetite and cheerfulness, and to control expectoration, night sweats, and diarrhœa. Even in the advanced stages of the disease, he states that their influence as a palliative is often very striking. Subsequent observations, however, have much shaken the faith of the profession in the alleged value of the Hypophosphites in *Phthisis*. They failed in the hands of Dr. Quain;* and in twenty cases in which they were fairly tried by Dr. J. R. Bennett,† there were only nine in which the disease did not steadily advance whilst under treatment, or in which there was the least evidence of improvement. Of these nine, only four manifested any decided improvement, of the permanency of which there was no proof. Dr. Bennett employed the Hypophosphite of Soda in doses of gr. xv., three times a day. Dr. Cotton‡ also employed them unsuccessfully in twelve cases; and as no benefit was apparent, he was of opinion that it would have been unjustifiable trifling with the disease to have given a longer trial to the treatment.

2564. *In Debility resulting from Prolonged Lactation, in some forms of Dyspepsia, in Anæmia and Leucocythæmia, in Catarrhal and Leucorrhœal Discharges, in Myalgia and Muscular Pains simulating Inflammation*, Mr. Taylor resorted to the Hypophosphites with more or less marked benefit; in fact, in all cases where there is reason to suppose the phosphates to be morbidly deficient, they may be prescribed with a good prospect of success. The demand for the Phosphate of Lime in the construction of the teeth contributes to the disturbing influence called the *Fever of Dentition:* in this also, whether it occurs in weakly, ill-fed children, or in the robust, Mr. Taylor employed them with marked success; in the former class he combines them with some tonic or aromatic tincture, in the latter with Acetate of Ammonia or Syrup of Rhubarb. Mr. Taylor's suggestive paper will well repay careful perusal.

2565. SODÆ HYPOSULPHIS. Hyposulphite of Soda. $NaO, S_2O_2 + 5\,HO$. It occurs in the form of transparent, four-sided, odourless crystals, of a cool saline and afterwards bitter taste, readily soluble in Water, but not in Alcohol. Discovered by Chaussier in 1799.

* Lancet, March 17, 1860.
† Med. Times and Gaz., April 27, 1861.
‡ Lancet, April 25, 1863.

Med. Prop. and Action. This salt, according to M. Dupasquier,* possesses no poisonous properties, and may be taken to the extent of ʒj.—ʒiss. without inconvenience; he considers that its action is similar to that of the Sulphate of Soda and other neutral alkaline salts, as he found it purge in the same doses, and produce analogous effects. In small doses (gr. xx.—gr. lx.) it is regarded as alterative and resolvent. Externally, it is applied in the form of lotion or baths: for the latter purpose, oz. j.—oz. iv. should be added to each bath. Pereira† states, that sometimes a small quantity of dilute Sulphuric Acid or Vinegar is added to the bath whilst the patient is immersed, by which means Sulphurous Acid and Sulphur are set free.

2566. *Therapeutic Uses. In Chronic Cutaneous Affections*, it was first employed by Chaussier and Biett, but it fell into disuse till 1844, when it was again used with great success by M. Quesneville,‡ who regards it as peculiarly serviceable in the skin diseases of scrofulous subjects. *In Psoriasis*, Cazenave recommends the following:—℞ Sodæ Hyposulph. gr. lxxiv., Syr. Sarsaparillæ, Syr. Daphnæ Mezer. āā fʒv., M. Dose, a tablespoonful night and morning. From the fact that Sulphurous Acid destroys vegetable life, a solution of this salt decomposed by the addition of an acid is a valuable application in *Skin Diseases connected with vegetable parasitic growths, as Porrigo.*

2567. In a case of *Sarcina Ventriculi* of some years' standing, Dr. Neale § found great advantage from the Hyposulphite in doses of gr. x.—xv. in infusion of Quassia. Its efficacy in this and allied diseases doubtless depends upon the disengagement of Sulphurous Acid, which it is well known is very destructive of the lower forms of organic life.

2568. *In Acute Rheumatism*, it was administered as an antiphlogistic by Dr. J. H. Warren, who ascribes to it powerful diuretic virtues (Dunglison).‖

2569. SODÆ PHOSPHAS. Phosphate of Soda. $2\,NaO, HO, PO_5 + 24\,HO$. Tribasic Phosphate of Soda. Tasteless Purging Salt. *Comp.* 2 Eq. Soda = 62, + 1 Tribasic Phosphoric Acid = 72, + 1 Water, as base, = 9, + 24 Water of Crystallization = 216 = 359, Eq. Wt. It is obtained chiefly from bone ashes.

Med. Prop. and Action. Alterative in doses of gr. xx.—gr. lx.; purgative, in doses of oz. ss.—oz. j. It is a mild and efficient purge, and has the advantage of so closely resembling common salt in taste that it may be given in broth or soup, without being distinguishable from the latter. It produces thin watery stools, and is well adapted for children, not only on account of its taste, but from the mildness of its action.

Incompatibles. Mineral Acids, and most metallic and earthy salts.

2570. *Therapeutic Uses. Calculous Diseases.* Liebig first called attention to the solvent action of Phosphate of Soda *on Uric*

* Ann. de Thérap., 1844, p. 61.
† Mat. Med., vol. i. p. 578.
‡ Abeille Méd., 1844, p. 210.
§ Med. Times, June 18, 1853.
‖ New Remedies, p. 743.

Acid deposits, and it has since been used with apparent benefit. Dr. Golding Bird* states that he has employed it in two cases; in one with the effect of rapidly causing the disappearance of the Uric Acid deposit, when many other remedies had previously failed. The dose (gr. xx.—gr. xxx) may advantageously be given in broth, &c. (*ante*). The Ammonio-Phosphate of Soda is also a powerful solvent of Uric Acid calculi, but its extremely disagreeable flavour constitutes a great objection to its use.

2571. *In Diabetes*, it has been advised by Drs. Latham, Sharkey, and others. Dr. Prout† regards it as one of the few saline purgatives admissible in the treatment of this disease. Its chief advantage is, he states, that it does not exert a diuretic as well as a purgative effect. Dose, gr. xx.—gr. xxx.

2572. *In the Constipation of Children, and in Febrile Attacks*, the Phosphate proves an eligible aperient. For children, the dose is gr. v.—x., in soup or broth.

2573. *In Gout*, Dr. Basham‡ advises the local application of the Bibasic Phosphate of Soda The salt, finely-powdered, is sprinkled on the moistened surface of spongio-piline, and the whole of the affected part enveloped in it, and secured by a bandage. In many instances, it afforded immediate relief.

2574. *In Cholera*, the Phosphate of Soda was one of the principal ingredients of the saline treatment advised by Dr. O'Shaughnessy.§ He employed the following mixture:—℞ Sodæ Phos. gr. x., Sodii Chlor. gr. x., Sodæ Carb. gr. v., Sodæ Sulph. gr. x., Aq. f ℥vj., M. To be repeated every second hour. Like many other once vaunted remedies, it has not sustained its character, but may prove useful occasionally.

2575. SODÆ ET POTASSÆ TARTRAS. Tartrate of Soda and Potash. Sodæ Potassio-Tartras. Potassio-Tartrate of Soda. Tartarized Soda. Rochelle Salt. Sal Polychrest. $NaO, KO, C_8 H_4 O_{10} + 8 HO$.

Med. Prop. and Action. Diuretic, in doses of gr. xxx.—gr. lx.; cathartic, gr. cxx.—oz. ss. It should be given largely diluted, and may be advantageously administered in the form of Seidlitz Powders (Sodæ Pot. Tart. gr. cxx., Sodæ Bicarb. gr. xl., in one powder; Acid. Tart. gr. xxx. in another; dissolve the Soda in Oss. of water, add the acid, and drink whilst effervescing). When taken in small doses, it renders the urine alkaline, but this is not observed when the salt is given in sufficiently large doses to cause purging. It is particularly adapted to *gouty and rheumatic cases*, where there is a deposit of Uric Acid or urates; but it proves injurious when the phosphates are present. It is also well adapted as a purgative in *febrile affections and in the puerperal state.*

2576. SODÆ SULPHAS. Sulphate of Soda. $NaO, SO_3 + 10 HO$. Called also Glauber's Salt. *Comp.* Soda 19·25, Sulphuric

* On Urinary Deposits, p. 98.
† On Stomach and Renal Diseases, p. 49.
‡ Med. Times, Dec. 2, 1848.
§ Chemical Pathology of Cholera, p. 54, 1832.

Acid 24·85, Water 55·90, in 100 parts; or 1 Eq. Soda = 31, + 1 Sulphuric Acid = 40, + 10 Water = 90 = 161, Eq. Wt.

Med. Prop. and Action. Purgative, in does of oz. ss.—oz. j.; but when dried so as to expel the water of crystallization, half these quantities are sufficient. Its unpleasant taste, which is a great objection to its use, may be partially disguised by the addition of lemon-juice. "It operates," observes Dr. A. T. Thompson,* "upon the whole length of the intestinal canal, stimulating the orifices of the exhalent vessels, and consequently causing serous discharges in the form of thin watery stools." When added to freshly-drawn blood, it impedes coagulation, and the same effect is probably produced in the living body. It is particularly adapted for febrile and inflammatory states, when it may be advantageously combined with Cream of Tartar. In small doses it acts as a diuretic.

Dose, as a purgative, oz. ss.—oz. j.; as a diuretic, gr. lx.—gr. cxx.

Incompatibles. Carbonates of Potash, Magnesia, and Lime; Nitrate of Silver; Acetate of Lead; the Chlorides of Calcium and Barium.

Therapeutic Uses. Similar to those of Magnesiæ Sulphas, for which it may be substituted.

2577. SODÆ SULPHIS. Sulphite of Soda. $NaO, SO_2 + 8$ HO. Prepared by neutralizing Bisulphite of Soda with Carbonate of Soda, and crystallizing.

Med. Prop. and Action. Similar to those of Sulphurous Acid and the Hyposulphite. It has been prescribed with benefit in cases of chronic yeasty vomiting, connected with *Sarcinæ Ventriculi.* In these cases it is supposed to act by evolving Sulphurous Acid. As an external application, a solution of it, acidulated with Acetic Acid, may be used as a lotion in those forms of skin diseases accompanied by vegetable growths.

Dose, gr. xx.—gr. lx.

2578. SODÆ VALERIANAS. Valerianate of Soda. $NaO, C_{10}H_9O_3$.

Med. Prop. and Action. Stimulant and anti-spasmodic. According to Dr. Garrod,† this salt resembles Valerian in its action, and may be used in cases where Valerian is indicated.

Dose, gr. ½—gr. ij., or more.

2579. SODII CHLORIDUM. Chloride of Sodium. Sodæ Hydrochloras. Sodæ Murias. Hydrochlorate or Muriate of Soda. NaCl. Sea Salt. Common Salt. *Comp.* Sodium 39·3, Chlorine 60·7, in 100 parts; or 1 Eq. Sodium = 23, + 1 Chlorine = 35·5 = 58·5, Eq. Wt.

Med. Prop. and Action. Chloride of Sodium performs an important part in the animal economy. It enters largely into the composition of the blood, urine, &c.; and, as Liebig‡ justly observes, "The presence of free Muriatic Acid in the stomach, and of Soda in the blood, proves beyond all doubt the necessity of common Salt for the organic purposes. Deprived of it, all animals fade and die rapidly." In moderate quantities (gr. x.—gr. xx.), it improves the digestion and increases the appetite; in larger quantities, it occasions thirst; and in still larger ones (two or three table-spoonfuls), it acts as a

* Cyc. Pract. Med., art. Cathartics.
† Ess. Mat. Med. and Therap., p. 234.
‡ Animal Chemistry, p. 161.

powerful emetic. From oz. ss.—oz. j. proves cathartic and emetic; and used in the form of enema it purges freely. In excessive doses it is an irritant poison, occasioning inflammation of the stomach and intestines. In many diseases, as Cholera for example, it apparently acts by supplying deficient Salt to the blood. It is a chemical *antidote in poisoning by the Nitrate of Silver.* Externally applied, Salt is a rubefacient; and Salt-water, natural or artificial, has long been employed as a general tonic and discutient, in *scrofulous glandular enlargements, diseases of the joints, &c. When leeches have crept into the rectum, or have been accidentally swallowed,* a solution of Salt will dislodge and kill them.

2580. *Therapeutic Uses. Cholera.* Common Salt given in large doses until it causes emesis, and large quantities of cold water, is a mode of treatment strongly advised by Drs. Stevens, Venables, Pidduck, Hoskings, Goodrich, and others; and from Mr. Ross's* table (see CALOMEL, sect. *Cholera*), it appears, that out of 607 cases treated in this manner, only 112 died, or 20 per cent., a very low rate of mortality. Dr. Hoskings states that of 62 cases treated on this plan, only 16 died; whilst under stimulants and Opium, the same number died out of 37 cases. Mr. Goodrich treated 12 cases in this way, and all died; however, he adds that they were all past hope before treatment. The dose is about two tablespoonfuls of common Salt, in fl. oz. iv.—fl. oz. viij. of cold water, repeated every quarter of an hour, until vomiting is produced, then cold water is advised in large draughts, to allay the insatiable thirst, and heat of the stomach. From the above data, there appears to be little doubt that Salt is of the highest value in this disease; but at the same time, we must not overlook the fact that cold water, *ad libitum*, was allowed to be drunk; and in all cases where this has been allowed, the mortality has been lower than when it has been withheld, whatever other course of treatment may have been pursued. Somewhat similar to the above is "the saline treatment" adopted at the Greville-street Hospital, under which the mortality, according to Mr. Ross's table, is stated to be only 14 per cent., the lowest rate yet given. The formula employed was Sodæ Carb. ℈ij., Sodii Chlor. (Salt) ʒij., Potass. Chlorat. gr. viij., Aq. q. s. pro haust. The patient was also placed in a hot bath at 120°, in which lbs. xiv. of Salt was dissolved; cold water was allowed *ad libitum*. Injecting a solution of Salt into the veins has been tried occasionally, but not with a sufficient degree of success to warrant its adoption in general practice.

2581. *In Infantile Cholera*, Dr. Dewees† states that no remedy is so prompt and so certain as an injection of warm water, in which is dissolved a large teaspoonful of Salt. This strength is for a child of one year old; the quantity should be increased in proportion, according to the age of the child. Should it be fre-

* Lectures on Cholera, Med. Times, vol. xix. p. 89.

† On Children, &c., 7th Ed., p. 420.

quently returned, he advises it to be repeated and persevered in, until it bring away a fæcal or bilous discharge, after which the vomiting, &c., will cease. So decided and effective is this simple plan, that Dr. Dewees states that he has seen it above a hundred times relieve entirely, without the aid of other remedies.

2582. *In Bilous Diarrhœa*, Salt is advised by Trousseau. Its object is not so much to check the diarrhœa as to alter the composition of the blood, producing occasionally a primary, but more frequently a secondary alteration upon the intestinal irritation. From gr. x. to gr. lx., according to the age of the patient, may be repeated three or four times a day.

2583. *In Typhoid and other low Fevers*, Salt was formerly administered with the view of counteracting *putridity*, a term which has now, in a great measure, been abandoned, and with it, the means which were employed to correct or destroy this tendency. Dr. Copland's * observations on this subject are worthy of careful attention. That the Chloride of Sodium, he observes, is necessary to the healthy state of the blood, cannot be doubted; it therefore follows that the privation of it for a number of days, during the treatment of fevers, will materially favour the morbid condition which the fluids assume in the advanced stages. He thinks it probable that the common Salt, taken so abundantly with our food, after having produced the effects arising from its neutral state, becomes decomposed in the system, and that each of its constituents performs ulterior offices in the economy that are necessary to the continuance of health, and enters into new combinations, produced by the actions of the respective organs on the circulating and secreted fluids. If this view be just, the insufficient supply, or the privation of this Salt in the early stages, whilst the discharge of it continues by the excretions, will cause a deficiency of it in the advanced periods of fever, and will give rise to further changes, both in the circulating and in the secreted fluids. In conformity with this opinion, a modification of the medical and regimenal treatment usually recommended in typhoid fevers, should be adopted. It is not improbable, he adds, that the evils resulting from a total privation of a substance so necessary to the healthy discharge of the functions as the Chloride of Sodium, would have been more generally manifested in these diseases, if other substances (as Chlorinated Soda, &c.), acting somewhat similarly upon the blood and on the system, had not been commonly employed in the treatment of them.

2584. *In Intermittent Fevers*, Salt has been recommended by Dr. Willemin,† late Sanitary Physician in the East, in his Report to the Board of Trade in Paris. He states that at Damascus

* Dict. Pract. Med., vol. i. p. 1032. † Pereira, vol. i. p. 583.

large doses of common Salt have stopped the fever six times out of every seven cases, and even smaller doses, as from two to four half-ounce doses in six ounces of Water, were in most cases sufficient. M. Piorry* reported favourably of the practice of giving large doses (ʒss.—ʒj.) of Salt, which not only controlled the fever, but had the effect of diminishing enlargements of the spleen. Dr. J. C. Hutchinson† (U.S.), who in twenty-two cases prescribed ʒviij.—ʒxij. during a pyrexia, regards it as a good and cheap substitute for Cinchona Salts, but inferior to them in power. On the other hand, it failed partially or wholly in the hands of M. Levi ‡ and M. Ancelon.§ It may be classed amongst the remedies occasionally useful, especially in mild cases.

2585. *In Hæmoptysis*, common Salt is a popular remedy in some parts of Great Britain; and Dr. Law,‖ of Dublin, states that he has often witnessed its efficacy. Dr. Graves ¶ also speaks favourably of it. It has been proposed as a remedy for *Phthisis*, but Dr. Cotton,** who examined its merits, states that it has no direct effect upon the disease when fully developed. Its tonic influence in Phthisis, he remarks, may be fairly ranked with that of many other tonics, such as bitters.

2586. *In Ophthalmia*, Dr. Hays†† recommends a saturated solution of Salt as a collyrium. *In Chronic Granular Ophthalmia* in particular, he employed it in numerous cases with the most striking benefit.

2587. *Against Worms*, Salt proves very effectual. It was much employed against *A. Lumbricoides* by Dr. Rush, who states that, in the course of his practice, he administered many pounds of common Salt, coloured with Cochineal, in doses of ʒss., and that, given on an empty stomach, it is an effectual means of destroying worms. It is said not only to expel worms, but to prevent their reproduction. M. Cazin ‡‡ speaks very favourably of its efficacy, either given alone in large doses, dissolved in water, and taken on an empty stomach, or in the form of enema (when *A. Vermicularis* is present), with brown sugar, linseed, or poppy oil, and a sufficient quantity of water. With children, he adds, it almost always succeeds.

2588. Sodii Iodidum. Iodide of Sodium. Hydriodate of Soda. A very deliquescent salt, prepared by decomposing Iodide of Iron by Carbonate of Soda in solution, and evaporating at a gentle heat to crystallization.

* Ann. de Méd. et de Chir., 1853, p. 1.
† New York Med. Journ., March 1854.
‡ Ann. de Thérap., 1853, p. 245.
§ Ibid.
‖ Cyc. Pract. Med., vol. ii. p. 407.
¶ Clin. Lect., vol. ii. p. 142.
** Med. Times and Gaz., May 28, 1859.
†† Amer. Journ. of Med. Sciences, Aug. 1840.
‡‡ Dub. Quart. Journ., May 1850.

Med. Prop. and Action. These have been examined by Dr. Gamberini,* of Bologna, who, after considerable experience in its use, draws the following conclusions:—1. Soda being a very common ingredient in the organism, the Iodide of its base appears to be best suited to the human system. 2. Its taste is much less disagreeable than that of the Iodide of Potassium. 3. It is less likely to occasion Iodism. 4. It is better borne than the Potassium Salt, and consequently its dose can be almost daily increased: it thus becomes a more efficient remedy. 5. It has sometimes succeeded where the Iodide of Potassium has failed. 6. It may be given daily in three equal doses, ℈j. of the Salt to ℥iij. of Water, increasing the strength of the solution every two or three days by six grains. Some patients have in this manner been able to take ℥ij. daily without the slightest inconvenience. 7. It is admirably adapted to cases in which the corresponding Salt of Potassium is indicated. 8. It is the best substitute for Mercury.

Dose, gr. v.—gr. xv., or more.

2589. *Therapeutic Uses. In Constitutional Syphilis*, Gamberini administered this salt in 116 cases: the results were, on the whole, highly satisfactory; and it was remarked that the greatest amount of benefit was derived by those who had previously undergone a protracted course of Mercury without eradicating the disease. Like other remedies of the same class, it affords no security against relapses. In nineteen cases of *Secondary Syphilis affecting the bones and periosteum*, this salt was administered by Dr. Daveri,† who states that, compared with the Iodide of Potassium, it is equally beneficial, whilst it is far more palatable. From the larger doses in which it can be administered, the treatment was found to be much abridged.

2590. SOLANUM DULCAMARA. Bitter Sweet, or Woody Nightshade. *Nat. Ord.* Solanaceæ. *Linn. Syst.* Pentandria Monogynia. *Hab.* Great Britain.

Med. Prop. and Action. The twigs (*aff.*) are diaphoretic, diuretic, and alterative. It may be given in decoction (gr. dc. of the twigs, Water Oiss. boiled to Oj.), in doses of fl. oz. iss.—fl. oz. ij.; but its operation and effects are imperfectly ascertained. In large doses it is said to be acro-narcotic. It contains an alkaloid, *Solania* ($C_{86}H_{70}NO_{32}$?).‡

Offic. Prep. Infusum Dulcamaræ (Dulcamara bruised oz. j.; Boiling Distilled Water fl. oz. x. Infuse one hour and strain). Dose, fl. oz. j.—fl. oz. iv.

2591. *Therapeutic Uses. In Lepra and Psoriasis*, it is recommended by Dr. Crichton,§ Dr. Gardner,‖ &c. Dr. Wright¶ employed it with much success, and considers that it possesses slightly tonic and diaphoretic properties, for which reason he prescribes it in Psoriasis, when the skin is dry, with more or less alimentary disorder. Dr. Elliotson,** who thinks favourably of it, advises Oj. of the decoction to be taken daily, commencing with f℥ij. daily, and gradually increasing the dose. *In Eczema*, it is advised by Rayer.††

* Corrispon. Scient. di Roma, 1852.
† Bull. delle Sci. Med., xix. p. 269.
‡ Garrod, op. cit.
§ Willan on Cutaneous Diseases, p. 145.
‖ Med. Phys. Journ., May 1830.
¶ Med. Times, vol. xvi. p. 387, 1847.
** Lectures, p. 381.
†† Diseases of the Skin, p. 81.

2592. Solanum Tuberosum. Common Potato. As an article of diet the Potato is too well known to require description. In the dry state, it contains Starch 64, Sugar and Gum 15, Proteine compounds 9, fat 1, fibre 11 per cent Its ultimate composition is Carbon 44, Hydrogen 5·8, Oxygen 44·7, Nitrogen 1·5, Ashes 4 = 100. A peculiar alkaloid, *Solania*, has also been detected. The leaves are stated to be narcotic, but this requires confirmation.

2593. *Therapeutic Uses. In Scurvy*, Potatoes prove most useful. I have repeatedly seen them productive of the best effects. If taken regularly as an article of diet, they appear to be a preventive of the disease.

2594. *In Burns and Scalds*, scraped Potato is a popular application. When boiled, they have also been used as an emollient poultice.

2595. *In Poisoning by Iodine*, boiled Potatoes act as an antidote, in consequence of the large proportion of starch which they contain.

2596. *In Diabetes*, bread made of Potatoes entirely deprived of their starch is recommended; but the starch should be carefully removed, otherwise its presence may augment the severity of the disease. In the plain boiled state they are contra-indicated.*

2597. *In Neuralgic and Rheumatic Affections*, an extract prepared from the herb (in doses of gr. $\frac{1}{8}$—$\frac{1}{2}$) is said to act as an anodyne and narcotic.

2598. Soymida (Swietenia) Febrifuga. (Rohun, *Hind.*) *Nat. Ord.* Cedrelaceæ. *Hab.* Central and Southern India.

Med. Prop. and Action. Astringent, tonic, and febrifuge. It may also be given in decoction (3x. of the bark, Water Oij., boil in an earthen vessel to Oj.; strain: Beng. Ph.). It is also useful as an astringent lotion and injection.

Dose of powdered bark, gr. xx.—gr. xl.

2599. *Therapeutic Uses. In Intermittent Fevers*, it has been advised as a substitute for Cinchona, by Dr. Roxburgh, Dr. Duncan, Mr. Breton,† and others. O'Shaughnessy,‡ however, considers it to be of very questionable efficacy, and although, like mahogany and other astringents, it may occasionally be useful in mild cases, it is not to be trusted to in severe or complicated ones. It may be given in extract or in decoction (*ante*).

2600. *In Leucorrhœa, Atonic Menorrhagia, &c., and also in*

* *Palmer's Bread for Diabetic Patients.* Take the ligneous matter of 16lbs. of Potatoes washed free from starch, ¾lb. of Mutton Suet, ¼lb. of fresh Butter, 12 Eggs, ℥ss. of Carbonate of Soda, and ℥ij. of dilute Hydrochloric Acid. Divide into eight cakes, and bake in a quick oven, until they are nicely browned.—*Lancet*, March 17, 1849.

† Med.-Chir. Trans., vol. xi. p. 324.

‡ Bengal Dispensatory.

relaxation of the Mucous Membrane of the Rectum, attended with Prolapsus, the decoction (*ut supra*) may be used as an injection, with great advantage.

2601. *In Relaxed Sore Throat, &c.*, the decoction is a useful gargle.

SPARTIUM SCOPARIUM. See SAROTHAMNUS SCOPARIUS.

2602. SPIGELIA ANTHELMIA. Demerara Pink Root. *Nat. Ord.* Loganiaceæ. *Hab.* S. America.

Med. Prop. and Action. Powerful anthelmintic, two or three fresh leaves, in decoction, being sufficient for a dose. In over-doses it is an acro-narcotic poison, the poisonous principle being contained in a soft resin, *Spigelin*. It is particularly useful against *A. Vermicularis, or maw-worm*.

2603. SPIGELIA MARILANDICA. Carolina Pink. Worm-seed or Indian Pink. *Nat. Ord.* Loganiaceæ. *Linn. Syst.* Pentandria Monogynia. *Hab.* The United States.

Med. Prop. and Action. The root is anthelmintic in doses of gr. lx.—gr. clxxx. for adults. In larger doses, it causes vomiting and purging, and in still larger ones, it operates as an acro-narcotic poison; the symptoms being vertigo, dilated pupil, tetanic twitchings of the muscles, and delirium. Taken with an equal quantity of infusion of Senna, its effects are more speedy and certain (see *infra*).

Dose for adults, gr. lx.—gr. clxxx.; for a child, gr. x.—gr. xx.

2604. *Therapeutic Uses. Against Lumbrici or Round Worms*, Spigelia is much employed in the United States. Dr. Dewees'* testimony in its favour is very strong. Of the many hundreds of cases in which he employed it, he states that in only one instance did he witness any unpleasant consequences follow its use, although it is popularly considered as a dangerous remedy. He administered the powdered root in the following doses:—For children of from one to two years ʒij., from two to five years ʒiiss. —ʒiij., from five to twelve years ʒss., and for an adult ʒv. to ʒvj. Given in these quantities, Dr. Dewees regards it as a safe and efficacious medicine. In the one instance in which he found it disagree, it produced slight delirium; but this passed off spontaneously in four or five hours.

2605. *In Pruritus Ani arising from the presence of Ascarides in the Rectum*, Dr. Koreff† found an infusion of Spigelia root (ʒjss. ad Aq. Oj.) very efficacious. He mentions one very severe case, which, after resisting all other remedies, completely yielded in eight days to this medicine.

2606. *In Infantile Remittent and other Fevers*, Spigelia is favourably spoken of by Drs. Barton, Hope, and other American physicians; but there is no evidence of its efficacy, excepting that it causes the expulsion of worms, on the presence of which these fevers so often depend.

* On the Management of Children, &c., 7th Ed., p. 495.

† Med. Times, vol. xix. p. 42.

SPIRITUS PYROXYLICUS RECTIFICATUS. See NAPHTHA (WOOD).

2607. SPONGIA USTA. Burnt Sponge. Formerly a remedy of high repute in the treatment of *Scrofula and Bronchocele.* According to Garrod,* Burnt Sponge contains a large amount of Carbon mixed with Carbonate and Sulphate of Lime, Chloride of Sodium and Iron; also from 1 to 2 per cent. of Iodide of Potassium and some Bromide. Preuss† found Iodide of Sodium, Bromide of Magnesium, Protoxide of Iron and Phosphate of Lime in Calcined Sponge. Since the discovery of its active principle, *Iodine*, the latter has generally superseded its use; but in various parts of Europe the Burnt Sponge in substance is still employed, and, it is stated, with much success: it is, indeed, only reasonable to conclude that the Bromine and the Iron which the Sponge contains may give it a superiority over the simple Iodine. Compressed Sponge, as a mechanical remedial agent, has been introduced by Dr. Batchelder.‡ He advocates its use for dilating *Strictures of the Urethra and Rectum, Fistulous Passages, Sinuses, &c.;* also as an application to *Piles, Morbid Growths, Tumours, Varicose Veins, &c.* Sponge tents, made of Compressed Sponge, impregnated with wax, for dilating the Os Utcri in cases of Uterine Polypus, &c., have long been in general use.

Dose, gr. x.—gr. lx. or more, in electuary or lozenge.

2608. *Therapeutic Uses. In Bronchocele*, Burnt Sponge, in doses of gr. x.—gr. xxx., thrice daily, was formerly regarded as a sovereign remedy. It was given in the form of electuary or lozenge, and was retained in the mouth until it was dissolved, from the idea that in this manner its influence was more direct and speedy. As an alterative course of Mercury generally accompanied its use, it is difficult to say how far the Sponge contributed to effect the cure. *In Scrofulous Affections*, it was employed extensively in the same manner; and, although its efficacy is stated to have been great, it has been abandoned in British practice, Iodine being considered more effectual.

2609. STANNUM. Stanni Pulvis, seu Limatura. Tin filings. It was formerly used as a vermifuge, but is now seldom prescribed, other much more effectual remedies having been discovered. It is usually used against *Lumbrici or Round Worms.* Its action is supposed by some to depend on the disengagement of Hydrogen when the metal is brought into contact with the gastric juice; by others it is believed

* Ess. Mat. Med. and Therap., p. 338.

† Pereira, vol. ii. pt. ii. p. 722.

‡ Ranking's Abstract, xxx. p. 166.

to act as a mechanical irritant. Although it has fallen into disuse, Dr. Graves* observes that with some persons it is an unfailing remedy.

Dose, from gr. xx. to gr. lx., in Treacle, repeated three or four times a day for four successive days, followed by a brisk cathartic.

2610. STANNI CHLORIDUM. Chloride of Tin. SnCl. Called also the Muriate, the Proto-muriate, the Hydrochlorate, or Butter of Tin.

Med. Prop. and Action. Tonic and anti-spasmodic. In large doses it produces convulsive twitchings of the face, convulsions, and paralysis. Externally, it is used as a lotion (gr. j. ad Aq. fl. oz. j.).

Dose, gr. $\frac{1}{6}$—$\frac{1}{2}$, twice daily, in the form of pill.

2611. *Therapeutic Uses. In Chorea, Epilepsy, and other Nervous Affections*, it has been employed by Dr. Schlessinger,† in doses of gr. $\frac{1}{6}$ to $\frac{1}{4}$, three or four times a day, in pill or dissolved in Hydrochloric Ether. Sometimes he found it at first increase the symptoms, but this he regarded as a good omen. If its administration be followed by gastro-intestinal irritation, or dryness of the throat, the dose should be diminished, or the medicine be altogether abandoned. Several cases are related by Dr. Schlessinger and others in which it proved successful.

2612. *In Cutaneous Diseases of a Chronic and obstinate character*, Dr. Schlessinger found the Hydrochlorate in the doses named in the last section of great service. Externally he also applied it in the form of lotion (gr. $\frac{1}{6}$—gr. j. ad Aq. f$\frac{ss}{3}$j.).

2613. *Against Tænia or Tape-Worm* it has been advised; but its real value as a vermifuge is yet unascertained.

2614. STRAMONIUM. Stramonii Folia et Semina. The dried leaves and ripe seeds of Datura Stramonium. Thorn Apple. *Nat. Ord.* Solanaceæ. *Linn. Syst.* Pentandria Monogynia. *Hab.* England and various parts of Europe. Closely-allied species are found in the East Indies, Burmah, North America, &c.

Med. Prop. and Action. Anodyne and anti-spasmodic. Active principle, an alkaloid, *Daturia* or *Daturina* ($C_{34}H_{23}NO_6$). The properties of Daturia resemble those of Atropia. Daturia and Atropia are probably identical (Garrod). In large or long-continued doses Stramonium causes dilatation of the pupil (an effect which is also perceived if the extract be applied to the eyebrow, temples, &c.), great disturbance of the cerebral functions, delirium, coma, and death. It will often act as a narcotic and anodyne where Opium or Belladonna fail. The best form for internal use is the Extract; it is advisable to commence with a small dose (gr. $\frac{1}{4}$), and gradually to increase the quantity until it produces some obvious effect. It may also be smoked in a pipe, and the fumes inhaled; for this purpose gr. x.—gr. xxx. of the leaves is sufficient, but it should be used with great caution, and immediately discontinued if it cause vertigo, dryness of the throat, dilatation of the pupils, &c. Externally,

* Clin. Lect., vol. ii. p. 248.

† Brit. For. Med. Rev., Oct. 1838, and April 1846.

the leaves, either in the form of fomentation or cataplasm, are a valuable anodyne. Caustic fixed alkalies, as Soda and Potash, have been shown by Dr. Garrod to destroy its narcotic powers: hence they should not be prescribed together.

Offic. Prep. Of the Seeds:—

1. Extractum Stramonii (Stramonium Seeds in coarse powder lb. j.; Proof Spirit q. s. Prepared by percolation and evaporation). Dose, gr. ¼—gr. iss.
2. Tinctura Stramonii (Stramonium Seeds bruised oz. iiss.; Proof Spirit Oj. Prepared by maceration and percolation). Dose, ♏x.—♏xxx.

Dose of the powdered leaves, gr. j.—gr. iij.

2615. *Therapeutic Uses. In Spasmodic Asthma*, smoking the dried leaves and stems of the Datura has been highly recommended; indeed, Dr. Copland* regards it as the best remedy that can be employed. In many instances, it certainly affords great and immediate relief; whilst in others, it produces no sensible alleviation. The experience of the patient is the sole test of its utility. Dr. Hope† considers that it acts by increasing the bronchial and salivary secretions, but more especially by its sedative and anti-spasmodic effects, tranquillizing the nervous system, resolving the bronchial spasm, and allaying the sensation of want of breath. From gr. x. to gr. xxx. of the dried leaves is sufficient at a time; it may be repeated three or four times daily, if necessary, but it should not be persevered in if it produce vertigo, nausea, &c. Serious, and even fatal results have followed its incautious use. It may also be given internally, in the form of extract.

2616. *In the Dyspnœa of Phthisis*, Sir J. Clark‡ states that he found the extract of Stramonium very efficacious. The dose is from gr. ¼—gr. j. daily, when the Dyspnœa is constant.

2617. *In Emphysema of the Lungs*, it proves useful. Dr. C. Williams§ observes, if the expectoration be not sufficiently free, and a fit of Dyspnœa occur during the night in consequence, benefit may often be derived from smoking Stramonium in the evening; this excites secretion from the bronchial surface, and prevents the congestion which would otherwise ensue during the first sleep.

2618. *In Chronic Coughs and Catarrhs*, smoking Stramonium often affords great relief, particularly when the cough is hard and dry, and the expectoration scanty and viscid.

2619. *In Neuralgia*, much relief is occasionally derived from the internal exhibition of the extract. Dr. Marcet‖ employed it with success, in doses of gr. ⅛—gr. ss. thrice daily; and Dr. Begbie¶ speaks favourably of it. Dr. Rowland** found it suc-

* Dict. Pract. Med., vol. i. p. 148.
† On Diseases of the Heart, p. 413.
‡ Cyc. Pract. Med., vol. iv. p. 351, art. Phthisis.
§ Lib. of Med., vol. iii. p. 159.
‖ Med.-Chir. Trans., vol. vii. p. 75.
¶ Trans of Med.-Chir. Soc. of Edinburgh, vol. i.
** On Neuralgia, Lond. 8vo, 1838.

ceed only in three cases out of ten; and in these three, partially in two, and completely in one. Dr. Elliotson considered it most useful in *Enteralgia*. Trousseau particularly advises its external application in the form of fomentations of the leaves (℥j. ad Aq. Oj.), or in that of ointment (one part of the powdered leaves to four of Lard). (Copland.)

2620. *In Insanity*, Baron Stoerck first proposed the internal use of Stramonium. It is occasionally useful, and may be advantageously administered, when, from any cause, Opium is contra-indicated, and a sedative is required. Dr. Burrows* found one grain of the extract procure sleep in furious mania, when other narcotics had failed; but when the effect had passed off, the patients awoke more furious than they had been previously. The same circumstance has been observed with respect to other narcotics. Of fifty-five cases collected from various sources by Bayle, the majority are said to have been benefited by its employment. *In Epilepsy*, it has in some instances proved serviceable, but most frequently it fails of affording any benefit. Greding, as quoted by Dr. Copland,† states that, of twenty-eight epileptics, it cured only two, permanently relieved four, and temporarily relieved eleven. *In Chorea*, associated with much nervous excitement, it has occasionally been given with advantage. Dr. Graves‡ relates a case in which a cure was effected by the following pills, conjoined with the use of the shower-bath:—℞ Quinæ Sulph. gr. viij., Ext. Stramon. gr. j.½, Pulv. Glycyrrhizæ gr. xv., M. ft. pil. iv., cap. j. quater in die. Although the Stramonium was continued until constitutional symptoms (dilatation of the pupils, &c.) were produced, Dr. Graves is inclined to attribute the improvement more to the shower-bath than to the Stramonium or Quinine. *In Nervous and Rheumatic Headache*, Dr. Copland § says that he has prescribed it with benefit.

2621. *In Dysmenorrhœa*, Stramonium has been given internally by Dr. Ferguson. He states that, in the severe forms of the disease, it has been productive of the most marked good effects.

2622. *In Diseases of the Eye, in Cataract, Iritis, deep-seated Ulceration of the Cornea, &c.*, the local application of an aqueous solution of the extract proves especially useful from its power of dilating the pupil. It is an excellent substitute for Belladonna, although it is generally regarded as inferior by British practitioners. (See Atropa Belladonna.)

2623. *In Dracunculus or Guinea-Worm*, Mr. Forbes recommends poultices of the bruised leaves of the Datura. He states

* Comment. on Insanity, 8vo, Lond. 1828.
† Dict. Pract. Med., vol. i. p. 808.
‡ Clin. Lect., vol. i. p. 535.
§ Op. cit., vol. ii. p. 535.
‖ Lib. of Med., vol. iv. p. 312.

that he has long employed them with decided advantage; leeches and fomentations only being had recourse to when inflammation exists in the neighbourhood of joints.

2624. *To painful Nodes and Rheumatic Swellings, particularly when they partake of a Syphilitic character*, I have found a leaf of the Datura, moistened in spirit and bound over the painful part, afford very great relief. Fomentations of the leaves (oz. j. ad Aq. Ferv. Oj.) may also be employed with benefit. *To painful and irritable Piles*, an ointment, composed of one part of the powdered leaves and four of Lard, is a useful anodyne application, but its use requires caution.

2625. STRYCHNIA. Strychnine. Called also Vauquelnia, and Tetanine. An alkaloid obtained from Strychnos Nux Vomica, Strychnos Ignatii, and some other species of Strychnos. *Chem. Form.* $C_{42}H_{22}N_2O_4$. It exists in Nux Vomica in combination with Strychnic or Igasuric Acid.

Med. Prop. and Action. Similar, in every respect, to Nux Vomica (see STRYCHNOS NUX VOMICA). It is best given in the form of pill, with bread crumbs. Great caution is requisite in its use, as some persons are extremely susceptible of its action; and so powerful a poison is it, that Pelletier caused the death of a dog in five minutes, by blowing half a grain of it into its mouth. One grain, or even less, is sufficient to cause fatal results in man. (See also STRYCHNOS NUX VOMICA.)

Offic. Prep. Liquor Strychniæ (Strychnia in crystals grs. iv.; Dilute Hydrochloric Acid ♏vj.; Rectified Spirit fl. drs. ij.; Distilled Water fl. drs. vj. Mix the Hydrochloric Acid with fl. drs. iv. of the Water, and dissolve the Strychnia in the mixture by the aid of heat. Then add the Spirit and the remainder of the Water). Half a grain of Strychnia is contained in fl. drm. j. Dose, ♏iij.—♏xv.

Strychnia is often prescribed in combination with Iron or Quinine or both. (See FERRI ET STRYCHNIÆ CITRAS.)

Dose of Strychnia or its Salts, gr. $\frac{1}{32}$—gr. $\frac{1}{8}$, slowly and gradually increased. The late Dr. Marshall Hall considered the dose of the alkaloid as a *tonic* to be gr. $\frac{1}{16}$ thrice daily; in larger doses he considered it stimulant. Strychnia should be immediately discontinued if it produce convulsive twitchings of the muscles.

Strychnia is frequently adulterated with Brucia, which may be detected by its striking a red colour on the addition of Nitric Acid.

The test for Strychnia is concentrated Sulphuric Acid with Bichromate of Potash. It yields a colourless solution with the acid, which, on the addition of the Bichromate, becomes of an intense violet colour, and then, passing through different shades of red, becomes after some hours of a pale yellow colour. If pure, Strychnia does not become red on the addition of Nitric Acid.

2626. *Therapeutic Uses. In Paralysis*, Strychnine has been used with very different results by different practitioners. This may arise from three causes:—1, the impurity of the drug; 2, the inability of the constitution to bear the remedy; 3, its injudicious application to all forms of paralysis. It is, as Andral*

* Journ. de Physiologie, 1823.

justly observes, in those cases when, as if from habit, the paralysis continues after effusion has been absorbed, that the symptoms will improve under the use of Strychnine; but when the brain is still in a disordered state, and sanguineous effusion exists, it will have the effect of exciting inflammatory action, and will prove injurious rather than beneficial; he adds, that it is in those forms of paralysis not dependent upon disease of the nervous centres, that it is the most beneficial, as for instance *in Lead or Mercurial Paralysis, and in that resulting from Rheumatism*. Subsequent experience has shown the justice of these remarks; and hemiplegia, which is so often connected with cerebral hæmorrhage, is found to improve under Strychnine less than paraplegia or general paralysis. Dr. Watson* also judiciously observes that no good can reasonably be expected from it, but much harm, unless the cord be free from organic disease. It may be commenced in doses of $\frac{1}{32}$—$\frac{1}{16}$ of a grain, twice or thrice daily, and cautiously increasing the quantity. After continuing the medicine for a few days or a week, slight convulsive twitchings, or a creeping sensation, will be experienced *in the paralytic limb*. The remedy should then be discontinued for two or three days, and resumed as before. The reason why the paralytic limb should be the first to feel the influence of the remedy has not yet been satisfactorily explained, although many ingenious suggestions have been offered. Cases in which it has been successfully employed are recorded by Andral,† Bardsley,‡ and Peterquin.§

2627. *In Amaurosis*, Strychnine was first proposed by Dr. Shortt,‖ and was subsequently employed with success by Dr. Middlemore.¶ It, however, entirely failed in the hands of Mr. Tyrrell** and Dr. Mackenzie;†† and Dr. Taylor‡‡ states that he is unable to recall a single instance in which it proved permanently beneficial, although temporary improvement of vision, to a remarkable degree, was sometimes produced. Dr. Middlemore limits its use to those cases in which the retina is in a state of atony, from some cause acting on its texture, either directly or through the medium of the system; and he considers that it should not be used when there is much vascular fulness of the system or of the retina, or a tendency to inflammation. To the surface, previously denuded by the application of a blister, he applied gr. $\frac{1}{4}$ of Strychnine; this is to be gradually increased to gr. ij.; and if, at the end of a fortnight, the sight be not improved, the remedy may be discontinued. It is only to be applied

* Lectures, vol. i. p. 546.
† Op. cit.
‡ Hospital Facts and Observations.
§ Med.-Chir. Trans., No. lxi. p. 217.
‖ Edinburgh Med. and Surg. Journ., No. xxxiv.
¶ Diseases of the Eye, vol. ii. p. 282.
** Ibid.
†† Ibid., p. 916.
‡‡ Lib. of Med., vol. ii. p. 336.

once daily; and if it create much irritation, it may be combined with a little Opium. Its effects should be carefully watched. *In Night Blindness*, its internal use in small doses gradually increased, may prove of service. It deserves a fair trial in this affection.

2628. *In Chorea*, Strychnine occasionally proves successful. Dr. Hogan relates some cases cured by its use; and M. Trousseau* states that, of thirteen cases submitted to its influence, ten were completely cured. He prefers the sulphate, on account of its superior purity and uniformity of action. He dissolves gr. j. in Syrup f℥iiiss.; and of this, administers f℥iiss. daily, divided into three doses, and gradually increases the dose, until itching of the scalp and slight stiffness of the masseter muscle are observable. It requires to be exhibited with great caution, and should not be employed until less dangerous remedies have had a fair trial. It has also been advised in *Epilepsy*.

2629. *In all cases of nervous exhaustion, whether the result of mental harass or sexual excess, and also in the threatenings of Epilepsy, and of some forms of Apoplexy*, Dr. Marshall Hall† states that the Acetate of Strychnine is a remedy of great promise, and that he has seen benefit from its use. He advises the following formula:—℞ Strych. Acet. gr. j., Acid. Acet. ♏xx., Alcohol f℥ij., Aq. f℥vj., M. sumat. gutt. x. pro dos. This should be combined with a rigid system of mental discipline, of diet, &c.

2630. *Of Intestinal Obstructions*, Dr. Homelle‡ relates three cases which were entirely removed under the use of Strychnine:—℞ Strych. gr. ½, Magnes. Calcin. ℥j., Sacchar. Alb. ℈j., M. ft. pulv. xx. One of these is to be given every hour until copious evacuations follow, which is generally after the twelfth or fourteenth dose. The medicine is supposed to act by increasing strongly the peristaltic contractions of the intestines, and giving them the power of overcoming the obstruction, whether caused by fæces or a paralysed condition of the muscular coat. *In Colica Pictonum*, a combination of Strychnine and Morphia is recommended by Dr. Bally.§ *In Lead Colic*, Strychnine, in doses of gr. $\frac{1}{16}$ thrice daily, has been successfully used by Dr. Swett.‖

2631. *In Amenorrhœa*, Dr. Bardsley¶ speaks of Strychnine as being an effectual remedy; and this is further supported by the experience of Dr. Copland,** who found that the preparations of Nux Vomica, particularly the extract, were most useful, in combination with Aloes, in stimulating the uterine organs, and strengthening the system. Its use requires caution.

* Rev. Méd. Chir., Jan. 1850.
† On the Threatenings of Apoplexy. &c., p. 63.
‡ Union Médicale, 1848.
§ Brit. For. Med. Rev., No. i. p. 225.
‖ Ranking's Abstract, xix. p. 89.
¶ Hospital Reports, p. 51.
** Dict. of Pract. Med., vol. ii. p. 839.

2632. *a.* STRYCHNOS COLUBRINA. Lignum Colubrinum. Snake-wood. *Hab.* Silhet.

b. STRYCHNOS IGNATII. The tree which yields St. Ignatius' Beans. *Hab.* The Philippine Islands.

c. STRYCHNOS TIEUTÉ. A tree from which is obtained an extract called Upas Tieuté Tjettek. *Hab.* Java.

These three trees may be considered together, their action being closely allied, and their active principle being the same; viz. *Strychnia.* They all belong to the Nat. Ord. Loganiaceæ. Their medical uses are the same as those of Strychnos Nux Vomica, for which they may be substituted; but the greatest caution is necessary in their use, and they should always be discontinued for a short period, when twitchings or stiffness of the muscles occur. St. Ignatius' beans yield 1·2 per cent. of Strychnia.

2633. STRYCHNOS NUX VOMICA. Nux Vomica, or Poison Nut Tree. *Nat. Ord.* Loganiaceæ. *Linn. Syst.* Pentandria Monogynia. *Hab.* Indian Archipelago, Southern India, Ceylon, &c.

Med. Prop. and Action. The seeds (*off.*) (Nux Vomica) and the bark (formerly known as the false Angustura bark) are powerful stimulants of the nervous system and spinal cord. The activity of the seed depends upon the presence of Strychnine and Brucine conjoined; that of the bark, according to Pelletier and Caventon's analysis, on Brucine alone, in combination with Gallic Acid. Dr. Garrod, however, states that the bark contains the same alkaloids as the seeds. In the seeds both Strychnia and Brucia are in combination with Igasuric Acid. The seeds yield about 0·4 per cent. of Strychnia. The bark is rarely employed, but its effects are very similar to those of the seeds, which are as follows:—In doses of gr. j.—gr. iij. of the powdered nut, Nux Vomica is a tonic, improving the appetite and the tone of the digestive organs, without any increased arterial excitement; promoting the urinary secretion; occasionally acting as a laxative, and more rarely as a diaphoretic. In larger doses, it causes a feeling of weakness in the limbs, a slight trembling or stiffness of the muscles and joints, a staggering gait, much anxiety of mind, which is expressed in the countenance, increased nervous sensibility, and loss of appetite. It is also said to act as an aphrodisiac. The intellect remains unimpaired. In larger or poisonous doses, the above symptoms, increased in intensity, are followed by frequent fits of tetanus, which affect both the limbs and the trunk of the body. There is also a burning sensation in the mouth and throat. The spasmodic contraction of the muscles of the chest cause a suspension of respiration, and consequent fatal asphyxia. When it does not prove rapidly fatal, intense thirst, vomiting, diarrhœa, and severe colic, are present. The *post-mortem* appearances are those of other acro-narcotic poisons. Some turgescence of the vessels of the brain, and traces of inflammation in the alimentary canal, have been found; amongst the rare appearances is softening of the brain and spinal cord. The smallest dose which has proved fatal is gr. iij. of the alcoholic extract, or gr. xxx. of the powder; the shortest period, one hour; the longest, three or four days. Recovery has taken place after very large doses of the poison (Dr. Guy*). Habit, however (as in the case of Opium, and other powerful medicines), blunts the sensibility, and allows of large quantities being taken without injury. Mr. Baker,† a surgeon of the Bengal Service, states that the natives of Hindostan take Kuchila nut (Nux Vomica) morning and evening, continuously for many months, beginning with an eighth of a grain, and gradually increasing the dose to an entire nut, or about 20 grains. If taken immediately before or after meals, no

* Med. Jurisprudence, p. 556.

† See Bengal Dispensatory, p. 439.

unpleasant effect is produced; but if this precaution is neglected, spasms are apt to ensue.

2634. *Modus Operandi.* Dr. Pereira* enters into this subject at a great length. From his observations it appears—1, that the operation of Nux Vomica is occasionally that of a local irritant; 2, that its active principle is absorbed into the system; 3, that the muscular contractions caused by Nux Vomica arise chiefly from changes effected in the nervous stimulus, and not from alterations in the contractility of the muscular fibre; 4, that the spinal cord is the part principally affected, although probably every part of the nervous system is specifically operated on; 5, that its action on the nervous system is that of an excitant or stimulant; 6, that no change is produced in the blood discs; 7, that death frequently results from a stoppage of the respiration, in consequence of spasm of the respiratory muscles, sometimes from exhaustion of nervous power. Dr. Harley's† experiments, however, seem to show that Strychnine and Brucine do not cause death by exhaustion, or by suffocation, arising either from closure of the glottis or from spasm in the walls of the chest, but by destroying the powers of the tissues and fluids of the body to absorb Oxygen and give off Carbonic Acid. From the researches of M. Vella,‡ it appears probable that a direct antagonism exists between Strychnine and the Woorara poison, and that they stand in the relative position of poison and antidote. According to the experiments of the Rev. S. Haughton, M.D.,§ it is probable that a similar antagonism exists between Strychnine and Nicotine. (See NICOTIANA TABACUM.)

Offic. Prep. 1. Extractum Nucis Vomicæ (Nux Vomica lb. j.; Rectified Spirit q. s. Prepared by first softening the Seeds by steam, then drying and reducing them to powder. The powder is then exhausted by boiling with successive portions of the Spirit. The liquid is then strained, the spirit distilled off, and the extract evaporated by a water bath to a proper consistence). Dose, gr. ¼—gr. ij.

2. Tinctura Nucis Vomicæ (Nux Vomica oz. ij.; Rectified Spirit Oj. The Seeds are softened by steam, dried and pulverized, and the Tincture is then prepared by maceration and percolation). Dose, ♏x.—♏xxx.

Dose of powdered Nux Vomica, gr. ¼—gr. iij.

When any of these preparations cause muscular stiffness or convulsive twitchings, they should be discontinued for a few days, and then resumed if the circumstances of the case require it.

2635. *Therapeutic Uses. In Amaurosis,* M. Peterquin,‖ of Lyons, found the external application of Nux Vomica very serviceable. He employed the Tincture, which was rubbed into the eyelids and temples daily. Alteratives and tonics were administered at the same time. (See STRYCHNIA.)

Paralysis. See STRYCHNIA.

2636. *In Diarrhœa, depending upon sub-acute inflammation of the Mucous Membranes,* with mucous glairy stools, tenesmus, griping, &c., Nux Vomica is stated to prove highly useful. Amongst others who have testified to its value are M. Recamier,¶ who, in a chronic case which had resisted all other remedies, effected a cure by the alcoholic extract in doses of gr. ½; and Dr. Nevins,** who found it of the greatest service *in Diarrhœa*

* Mat. Med., vol. ii. pt. i. p. 643, et seq.

† Lancet, June 7, 14, and July 12, 1857.

‡ Gaz. Méd. de Paris, Sept. 17, 1860.

§ Proceedings of Roy. Irish Acad., Nov. 29, 1859.

‖ Med.-Chir. Rev., July 1842.

¶ Richard, Elémens d'Hist. Nat. Med., t. ii. p. 148.

** Trans. of Lond. Ph., 1851, p. 172.

which accompanies exhaustion after Fevers. He advises the following formula:—℞ Ext. Nucis Vom. gr. ss., Pulv. Rhei, Pil. Hydrag. āā gr. ss., Ferri Carb. gr. j., Pulv. Opii gr. ½, M. ft. pil. ter die sumend. Dr. Graves,* also, speaks highly of its efficacy.

2637. *In Dysentery*, Nux Vomica has been highly spoken of. Hufeland† states that he derived great benefit from it in the treatment of epidemic dysentery. Thomann,‡ also, bears witness to its good effects; and Ritcher§ observes that the extract tends directly to allay the irritation of the alimentary canal; and that, if combined with Opium, this effect is very marked, and much more decided than when either Opium or the extract is given alone. Dr. Most found the following formula particularly serviceable in what he terms *Pituitous Dysentery*:—℞ Nucis Vom. f℥j., Aq. Ferv. f℥vj.; strain and add T. Opii f℥ss., M. Dose, a tablespoonful every two hours. Dr. Geddings,‖ who quotes the above authorities, adds his testimony to the value of this remedy in dysentery, and states that, from his own experience of its use, he feels assured that it will prove a useful adjunct, and that, in some cases at least, it will afford relief when other remedies fail.

2638. *In Pyrosis*, it was first proposed as a remedy by Linnæus, who regarded it almost as a specific. He advised it in doses of gr. x., but this quantity is much too large for ordinary cases. It certainly appears, in some cases, to exercise a powerful influence, but is inadmissible in inflammatory states of the intestinal canal. Its value has been confirmed by Drs. Belcome,¶ Mellor,** &c.

In Gastrodynia, attended with Pyrosis, it was also found very serviceable by Dr. Belcome; but it is a dangerous remedy, and should never be employed until the Nitrate of Bismuth and other more innocent remedies have been first tried.

2639. *In the Vomiting of Pregnancy*, Dr. Kroyher,†† of Presburg, advises minute doses of Nux Vomica as a specific. Dose of the tincture, gutt. ij.—iv., gradually increased to gutt. x. The bowels at the same time are to be carefully regulated.

2640. *In Prolapsus of the Rectum*, Dr. Schwartz‡‡ speaks highly of the extract of Nux Vomica. He dissolves gr. ij. in f℥ij. of water, and of this administers gutt. ij.—iij. for infants, and gutt. vj.—xv. to older children, according to their age. He adds that he has employed it extensively, and never saw any ill effects from it; still, it is too powerful a remedy to be used

* Clin. Lect., vol. ii. p. 218.
† Journal de Praktisch, &c., bd. i.
‡ Summa Observat. Med., t. iii.
§ Die Specielle Therap., bd. ii. p. 133.
‖ American Archiv. of Med. Sciences, No. 2, Nov. 1834.
¶ Lond. Med. Gaz., vol. xix. p. 964.
** Ibid., vol. xix. p. 851.
†† Med.-Chir. Rev., Jan. 1, 1841.
‡‡ Lond. Med. Gaz., vol. xvi. p. 168.

until milder measures have failed. M. Foucher* effected a cure in a case of *Prolapsus of the Rectum* occurring in a child æt. 4, by the hypodermic injection of Strychnine. He injected ten drops of a solution containing gr. iij. of the sulphate in f℥v. of distilled water.

2641. *In Incontinence of Urine*, it proves occasionally useful. Mr. Solly† employed it in one case of incontinence of urine, consequent on an operation of lithotomy, in doses of gr. $\frac{1}{8}$, twice or thrice daily, and by this means effected a perfect cure. M. Peterquin also successfully treated several cases of *incontinence of urine in children* with the tincture, employed as an embrocation to the loins and perinæum. Two cases, cured by its internal use, are also recorded by M. Cerchiari.‡ *In Spermatorrhœa and in Impotence*, it has also been found of occasional benefit.

2642. *In Neuralgia*, M. Roelants,§ of Amsterdam, employed Nux Vomica with great success. Out of twenty-nine severe cases, a perfect cure was effected in twenty-five, and decided relief afforded in the other four. He esteems it a certain and efficacious remedy. The dose was from gr. iij. to x. daily; but it is advisable to commence with the smaller dose, and gradually to increase it. Dr. Pidduck‖ found it effectual in *Sciatica*. It is inadvisable in inflammatory states.

2643. *Tremor of the Limbs produced by habitual Intoxication* is stated by Dr. Pereira¶ to be much benefited by the use of Nux Vomica. He mentions one case in which its effects were very marked.

2644. *In Intermittent Fevers*, it has been advised, and appears to possess considerable febrifuge power; but it is rarely employed, and is inadmissible when there exists cerebral complication, or congestion of the liver or spleen. *In Hay Fever*, Mr. Gream** states that he found it very effectual. He gave small doses, and applied Ung. Plumb. Acet., high up in the nostrils.

2645. *In Constipation*, depending upon deficient tone of the muscular coat of the large bowels, and imperfect propelling power of the upper part of the rectum, Dr. Copland†† states that he has found benefit from Nux Vomica, combined with other remedies; thus,—℞ Ext. Coloc. Co. ℈ij., Sapon. Castil. gr. xij., Ext. Nucis Vom. gr. iij., M. ft. pil. xij., cap. ij. horâ somni. He also found a similar formula useful in *Torpor of the Colon*. I have employed the formula in a large number of cases, and almost invariably with marked benefit.

2646. *In Chlorosis*, Dr. Copland‡‡ states that in a few obstinate

* Ranking's Abstract, xxxiii. p. 190.
† Med. Gaz., Feb. 2, 1849.
‡ Med.-Chir. Rev., No. lix. p. 230.
§ Archiv. Gén. de Méd., Sept. 1843.
‖ Med. Gaz., vol. xxvi.
¶ Mat. Med., vol. ii. part i. p. 1492.
** Lancet, June 8, 1850.
†† Dict. Pract. Med., vol. i. p. 309.
‡‡ Ibid., p. 318.

cases he has prescribed, with marked advantage, small doses of the extract of Nux Vomica:—℞ Pil. Aloes c. Myrrh. ℈vj., Ext. Nucis Vom. gr. x., M. ft. pil. xxxvj., cap. j.—ij. nocte maneque.

2647. *In Epilepsy*, when of an asthenic character, complicated with paralysis, or consequent on excessive evacuations, the formula advised in the last section has been found serviceable. When the disease follows the disappearance of the menstrual discharge, Dr. Copland * observes that it is of especial value. Its employment demands extreme caution; if administered in plethoric, inflammatory, and irritable states, or carried too far, it is liable to excite inflammation of the membranes of the brain and spinal cord. (Copland.)

2648. *In Diabetes*, it has been proposed, but it is a remedy of very doubtful value in this disease. Dr. Peacock † found advantage from the following powder:—℞ Pulv. Nucis Vom. gr. v., Ferri Precip. ℈j., Cretæ Præp. ʒj., Pulv. Opii gr. j., M. ft. pulv. ter in die sumend.

2649. STRYCHNOS PSEUDO-QUINA. A native of Brazil. The bark does not contain Strychnine, Brucine, or any poisonous principle, and is extensively employed by the Brazilians as a substitute for Cinchona *in Intermittent Fevers*, and other cases requiring the administration of tonics.

2650. STRYCHNOS TOXIFERA. A native of British Guiana. The juice obtained from this tree is the basis of the Woorara, Wourali, or Ourari poison of the South American Indians. This poison produces paralysis, accompanied by convulsive movements, and death ensues from suspended respiration. It has been proposed as a remedy *in Hydrophobia, Tetanus, and some other nervous affections*, and as an antidote to Strychnia.

2651. STYRAX PRÆPARATUS. Prepared Storax. Liquid Balsam, from Liquidambar Orientale (Ph. B.); from Styrax Officinale (Pereira). *Nat. Ord.* Styraceæ. *Linn. Syst.* Decandria Monogynia. *Source*, Southern Europe and Asia Minor. There are several varieties of Storax met with in commerce; the most esteemed are the Liquid Storax (officinal, purified by means of Rectified Spirit and straining), and the Styrax Calamita, which occurs in large brown cakes. *Comp.* a volatile oil (Styrol), Cinnamic Acid, a crystallizable substance (Styracine), and a peculiar resin.

* Dict. Pract. Med., vol. i. p. 818. † Lancet, No. 707, p. 911.

Med. Prop. and Action. Stimulant expectorant. It exercises a powerful influence on mucous membranes, particularly on those of the respiratory and genito-urinary organs. It is stated by M. L'Héritier* to be an efficient substitute for Copaiba. Its use, in consequence of the Cinnamic Acid it contains, increases the quantity of Hippuric Acid in the urine (Pereira). It is contra-indicated in all inflammatory states of the mucous membranes. The Pil. Styracis Co. (Pharm. Lond.) (strained Storax ʒvj., Opium ʒij., Saffron ʒij.) is a good form for internal use.

Offic. Prep. Tinctura Benzoini Composita. (See BENZOINUM.)

Dose of prepared Storax, gr. v.—gr. xx., in pill or emulsion.

2652. *Therapeutic Uses. In purely Chronic Bronchitis, Catarrh, and Asthma,* the compound Storax pill occasionally proves useful. It was formerly held in high esteem, but is now rarely employed. Any degree of inflammation contra-indicates its use.

2653. *To indolent and ill-conditioned Ulcers,* liquid Storax has been employed locally with advantage, improving the character and quantity of the discharge, and apparently favouring the healing process.

2654. *In Leucorrhœa, Gonorrhœa, and some other Affections of the Mucous Membranes of the Genito-Urinary Organs,* liquid Styrax in emulsion, with a sedative, may be given internally, with advantage.

2655. *In Paralysis,* Cullen speaks favourably of a stimulant embrocation, composed of one part of Storax and two of black Basilicon.

SUCCINUM. See AMBER.

2656. *a.* SULPHUR. Brimstone. An elementary body. Eq. 16.

b. SULPHUR SUBLIMATUM. Sublimed Sulphur. Flowers of Sulphur (*offic.*).

c. SULPHUR PRÆCIPITATUM. Precipitated or Milk of Sulphur (*offic.*).

d. SULPHUR LOTUM. Sublimed Sulphur washed. Magisterium Sulphuris.

These varieties of Sulphur differ only in their various degrees of purity.

Med. Prop. and Action. Sulphur is diaphoretic and alterative, in doses of gr. x.—gr. xxx. In doses of gr. lx.—gr. clxxx. it is a mild and certain aperient, producing solid, soft stools, of a light yellow colour, and smelling strongly of sulphuretted hydrogen. Dr. Paris considers that its action as an aperient is limited to the muscular coat of the large intestines; but Sundelin, perhaps more correctly, considers that it operates specifically on the mucous membrane of the intestines. When taken internally, it is absorbed into the system, and has been detected by Eberhard in the chyle, the lymphatics, and the vessels of the mesentery; a large portion of it passes off by the bowels, part is oxidized and converted into Sulphuric Acid, which is eliminated by the kidneys; and another portion passes off by the skin in the form of sul-

* Chem. Gaz., vol. i. 1842.

phuretted hydrogen. In the last way, it proves useful in cutaneous diseases. Under the continued use of small doses, it stimulates the various secretions, particularly that of the skin and mucous membranes. Internally, it may be given, when its aperient action is desired, with Confectio Sennæ, or with the Cream of Tartar in solution; but when its diaphoretic and alterative effects are desired, it may be given alone in milk, or in conjunction with Guaiacum, &c. Externally, it is applied in the form of simple ointment (see *Offic. Prep.*), or of compound ointment (Pharm. Lond.) (Sulphur ʒiv.; White Hellebore powdered ʒx.; Powdered Nitrate of Potash ℥ij.; Soft Soap ʒiv.; Lard lb. j.). The addition of Oil of Bergamot, ♏xxx., to either of these ointments, conceals the objectionable odour. The Sulphur vapour-bath is, also, a valuable means for external application. The apparatus required consists of a wooden or bamboo frame, of a conical shape, covered with wax-cloth, or some other impervious material; it should be large enough to enclose the whole body (when the patient is in a sitting posture), and an aperture, with a loose frill attached, so as to tie round the patient's throat, should be left at the apex. The Sulphur is placed on a heated plate on the ground within the apparatus, and the body is exposed to the fumes for fifteen minutes, or longer. It proves highly serviceable in cutaneous, rheumatic, and some other diseases.

Offic. Prep. 1. Confectio Sulphuris (Sublimed Sulphur oz. iv.; Acid Tartrate of Potash oz. j.; Syrup of Orange Pecl fl. oz. iv.). Dose, a teaspoonful once or twice a day.

2. Unguentum Sulphuris (Sublimed Sulphur oz. j.; Prepared Lard oz iv.). The odour may be concealed by Oil of Bergamot, and the colour by the addition of a few grains of Vermilion (Hydrargyri Sulphuretum).

2657. *Therapeutic Uses. Diseases of the Lungs. In Angina Pectoris, Spasmodic Asthma, and some other Spasmodic Affections of the Chest*, Dr. Munk* states that he derived the greatest benefit from the internal use of Sulphur, in doses of ʒss.—ʒj., once or twice daily. The use of Sulphur in Asthma is advocated by M. Dulcos.† He gives about gr. viij. daily, whilst fasting, and orders it to be persevered in for a long period.

2658. *In Chronic Bronchitis*, Dr. Graves ‡ recommends a combination of equal parts of Sulphur and Cream of Tartar. The latter modifies the stimulant action of the Sulphur, and exercises a beneficial operation on the kidneys.

2659. *In Phthisis*, Sulphur was formerly held in high esteem. Amongst its advocates were Galen, Sylvius, Willis, Lieutand, Sydenham, Stahl, and Hoffman. It has now fallen into comparative disuse, and Dr. Cowan § thinks that perhaps it is too much neglected. As a remedy for costiveness in this affection, he adds, it is worthy of notice, and might perhaps be advantageously employed against profuse perspirations. It is best administered in the form of mineral waters. (See also sect. Scrofula, *infra.*)

2660. *In the convulsive stage of Hooping-Cough*, Sulphur was found most useful by Kopp, Jadelot, and others. It is advised in doses of gr. j.—ij., in a little milk, repeated every two hours.

2661. *Diseases of the Abdominal Viscera, &c. Cholera*, Mr. A.

* Lancet, July 18, 1840.
† Bull. Gén. de Thérap., 1861.
‡ Clin. Lect., vol. ii. p. 14.
§ Trans. of Louis on Phthisis, p. 378.

Blacklock * considers, is caused by a disturbance of the electrical condition of the body. In order to arrest the colonic excitement, he advises enemas containing the Hydrosulphuret of Ammonia (f℥j. ad Aq. Oij.), the application of ligatures to the extremities in order to prevent the return of blood to the viscera, and the use of electricity; and, when the prominent symptoms have ceased, ℥j. of Sulphur, followed in two hours by gr. x. of Calomel and gr. ij. of Opium. *As a prophylactic*, he advises the use of Sulphur, and a diet rich in sulphuretted ingredients.

2662. *Against Tænia or Tape-Worm*, it has been successfully employed. Dr. Tridenti † employed it in doses of ℥ij. daily, in fifteen cases, and in each it proved effectual in causing the expulsion of the worm, at the end of a few days. No other medicine was given.

2663. *In Stricture and Prolapsus of the Rectum, and in Hæmorrhoids*, Sulphur may be administered with great advantage. It appears to exercise an influence greater than is fairly attributable to its aperient action. It should be taken with Cream of Tartar or Confection of Senna, in such doses as to produce one or two motions daily.

2664. *Diseases of the Skin. In Scabies*, Sulphur has for a long period been deemed almost a specific; and it certainly appears to be one of the most efficacious remedies we possess. The Ung. Sulph. Co. is more effectual, but at the same time more irritating, than the simple ointment. It should be diligently rubbed into the entire skin before the fire, and particularly into the affected portions, morning and evening, for two days. It is desirable, also, that the patient should wear a flannel shirt, and retain the same during the whole of the treatment. On the morning of the third day, the patient should take a warm bath, and wash the skin thoroughly with plenty of soap, when the cure will generally be found completed. In some cases, it is desirable, as a matter of precaution, to continue the inunction for a third day. To aid in effecting a speedy cure, an alkaline bath (Potas. Carb. lb. ss., Aq. Cj.) should be used previously to the application of the ointment; and Sulphur, with Cream of Tartar, should be given internally. The theory of its action is, that the Sulphur, when rubbed on the skin, is conveyed by imbibition into the texture of the epidermis, that here it is combined with hydrogen, and sulphuretted hydrogen gas is evolved, which acts as a deadly poison on the acarus, and destroys its ova. (Mr. Erasmus Wilson.‡) The operation of the Sulphur in these cases is said to be far more prompt and effectual if, immediately previous to the application of the ointment, the affected surface be first rubbed

* The Leading Phenomena of Cholera, 8vo, 1848.

† L'Expérience, Sept. 5, 1844.

‡ Diseases of the Skin, p. 304.

with brickdust, so as to expose the acari. After the ointment, a good ablution of soap and water is all that is required. Under this treatment a cure may be effected in a few hours. Dr. W. Frazer * states that Scabies is easily cured by a single application of a solution of Sulphide (Sulphuret) of Calcium. It is prepared by boiling Sulphur and lime in water until they unite; the eruption is to be rubbed with this fluid after a hot bath; it deposits a sulphurous layer, and a second bath leaves the patient well.

2665. *In Small-pox, to arrest the progress of the disease, and to prevent subsequent "pitting,"* Dr. Midivaine,† of Ghent, employed an ointment composed of Sulphur ʒij. and Lard ʒj., which is directed to be rubbed gently over the pustules, twice daily, at an early stage of the disease. It was subsequently given a fair trial by Dr. Coppen,‡ but it was found to fail in many instances.

2666. *In Acne Simplex*, Dr. Todd§ advises the following powders:—℞ Sulphur. Loti, Magnesiæ Carb. āā ʒj., Pulv. Rhei ℈j., Pulv. Rad. Glycyr. ʒss., M. ft. pulv. vj., cap. j. bis terve in die. Plummer's Pill, and other alteratives, may be given internally at the same time. *In Acne Rosacea*, Mr. E. Wilson‖ found great benefit from the following lotion:—℞ Sulphur. Sublim. ʒij., Camphor ʒj., Aq. Dest. fʒiv., M. ft. lotio.

2667. *In Prurigo Senilis*, Alibert advises the following as an effectual application:—℞ Sulphur. Sublim., T. Opii āā ʒss., Zinci Oxid. ʒj., Ol. Amygd. fʒj., Adipis ʒiij., M. ft. unguentum. Mr. E. Wilson¶ observes that Milk of Sulphur, in moderate doses night and morning, for two or three weeks, is sometimes found useful, particularly in the *Prurigo Mitis of children*. *In Impetigo*, Alibert's ointment (*ante*) often proves highly serviceable; but it is worthy of remark that the free application of Sulphur to impetiginous eruptions not unfrequently aggravates the local mischief. *In Ringworm*, the compound Sulphur Ointment, diligently rubbed into the scalp, proves serviceable. Mr. E. Wilson** speaks highly of the following application, originally suggested by Dr. Wilkinson:—℞ Sulphur. Sublim., Picis Liquidæ, Axung. āā ʒiv., Cretæ Præp. ʒij., Ammoniæ Hydrosulph. fʒj., M. *In Favus*, the Ung. Sulphur. Co. is a useful stimulant application. *In Pityriasis*, Dr. J. Green†† states, that in a practice of thirty years, he has never known a case which resisted a few exposures to a Sulphur vapour-bath. An aperient should precede the use of other measures. *Chloasma or Liver Spots* are often speedily removed by Sulphur given internally,

* Elements of Materia Medica, p. 9.
† Brit. and For. Med. Rev., No. xxx.
‡ Ann. de la Soc. Méd., 1844.
§ Cyc. Pract. Med., vol. i. p. 26.
‖ Op. cit., p. 414.
¶ Op. cit., p. 272.
** Op. cit., p. 448.
†† Compendium of Dis. of the Skin, p. 236.

and applied in the form of a vapour-bath. *In Chronic Eczema*, Sulphur added to Starch, and dusted over the part, is occasionally useful in relieving irritation.* Dr. W. Frazer observes, that in any eruption, so long as the pain is of a scalding character, Sulphur and its preparations increase the distressing sensations. *To Burns and Scalds*, Dr. Myrtle† recommends dressing with Sulphur Ointment.

2668. *Other Diseases. In Acute Rheumatism*, Dr. Greiner,‡ of Leipsic, found Sulphur a valuable remedy in doses of ʒj.—ʒij. three or four times a day. He observes that from its affinity for Hydrogen, and its union with that gas in the organization, its action is specially directed to the venous division of the sanguineous system. *In Chronic Rheumatism*, the value of Sulphur is much better established than in the acute forms of the disease. The nostrum, commonly known as "the Chelsea Pensioner," and which has long maintained a high repute as a remedy for the various forms of Chronic Rheumatism, appears to owe a great portion of its efficacy to the Sulphur which it contains. It is thus formed:—℞ Flor. Sulphur. ʒij., Potassæ Bitart. ʒj., Pulv. Guaiaci ʒj., Pulv. Rhei ʒij., Spirit. Nucis Myrist. fʒij., Mellis q. s. ft. electuarium. Dose, ʒj.—ʒij. every morning and evening. Prof. Graves§ speaks very favourably of a very similar formula, and Mr. Clay,‖ of Manchester, states that for several years he has prescribed Sulphur internally and externally in Chronic Rheumatism with the best effects. *In Gout*, it is advised by Hufeland with the view of preventing the recurrence of the attacks, for which purpose he combines it with Guaiacum, and gives it in doses sufficiently large to act gently as an aperient. *Rheumatic Headaches*, and also those which occur about the period of the cessation of the menses, are often much benefited by the internal use of Sulphur.

2669. In cases of *Granular Conjunctiva*, Mr. Wharton Jones¶ has used Sulphur Ointment as a local application with very good effects in several instances. It is applied much in the same manner as the Red Precipitate Ointment.

2670. *In Scrofula*, Mr. Bulley,** Surgeon of the Royal Berkshire Hospital, advises the internal use of Sulphur. "I have," he observes, "exhibited Sulphur in almost all the cases of Scrofula which have lately come under my notice, with a view to ascertain whether the restoration of this important element of the blood is capable of restoring the defective animal heat in these disorders; and the result of my observation is, that it seems

* Frazer, Elements of Materia Medica, p. 9.
† Edin. Med. Journ., April 1862.
‡ Brit. and For. Med. Rev., Oct. 1842.
§ Clin. Lect., vol. i. p. 494.
‖ Lancet, Aug. 22, 1840.
¶ Med. Times and Gaz., Jan. 15, 1859.
** Med. Times, vol. xviii. p. 53.

either directly or indirectly to operate in this manner, and I have every reason to believe that when carefully and assiduously administered, in small doses, insufficient for an aperient effect, it is a most valuable and efficacious remedy for scrofulous diseases. The action of the heart, previously feeble, becomes altered in strength; the extremities and cutaneous surface, which before were habitually cold, recover a certain degree of permanent warmth, and the general tone of the system improves." The following is the formula which he recommends:—℞. Sulph. Pur. gr. v.—x., Syr. Simp. f℥j., Aq. f℥vij., M. ft. haust.; to be taken once or twice daily, in a tumblerful of milk. The employment of Sulphur in the treatment of Scrofula is not of modern origin; it was formerly held in high esteem, but has fallen into disuse.

2671. *In Colica Pictonum, and in various forms of Lead Poisoning*, the internal and external use of Sulphur appears to prove of the highest service. Dr. Bennett* states, that the following treatment which he witnessed whilst a pupil of M. Gendrin, in Paris, was most successful:—At the commencement of the treatment, a Sulphur bath was given to the patient; the result of which was, that the Sulphur combining with the particles of Lead which were on the skin, formed a black sulphuret. The amount of Lead which is thus discovered to encrust, as it were, the skin of those who work at the preparations of Lead, is nearly incredible. "I have often," he observes, "seen men go to the baths quite white, and come out nearly as black as negroes." The Lead lying on the skin having been thus made visible to the eye, the patients are supplied with a hard brush and some soft soap, and made to scrub themselves daily in a warm bath, until all the black sulphuret has been brushed off. The Sulphur bath is then repeated until visible traces of the Lead no longer follow its use. This precaution is necessary to insure against a relapse. A drink of diluted Sulphuric Acid (ɱxl. Aq. Oj.) is enjoined at the same time. (See SULPHURIC ACID.) The bath may be conveniently formed by dissolving ℥iv. of the Sulphuret of Potassium in thirty gallons of water. If this salt is not procurable, perhaps the ordinary Sulphur vapour-bath might be substituted with advantage.

2672. *In Diabetes*, Sulphur has been advised by many German physicians. Dr. Copland† states that he has often seen much advantage derived from it; and that, when given in full and frequent doses, it is one of the best remedies we can resort to, either in the disease or during recovery, as it acts both on the bowels and on the skin.

2673. *In Paralysis of an Asthenic or Chronic character*, Dr.

* Lancet, April 4, 1846.

† Dict. Pract. Med., vol. i. pp. 514, 518.

Graves* places much confidence in Sulphur. He commences with Strychnia in small doses, and continues its use until some sensible effect on the system is produced; he then omits its use, and has recourse to the exhibition of Sulphur. He adds that he has seen very good effects from a perseverance in the use of the Sulphur electuary, and that much good will be accomplished by the external use of Sulphur, in the form of baths, &c.

2674. *The superabundance of Blood and nervous excitement after the cessation of the Menstrual discharge*, may be safely and effectually kept down by the habitual use of mild purgatives. Dr. Tilt,† for this purpose, generally administers the flour of Sulphur alone; or else, to each ounce of it, he adds a drachm of Sodæ Sesquicarb. vel Biboras; and sometimes, from gr. v. to gr. x. of Ipecacuanha. Of this, ℈j.—℈ij., taken at night in a little milk, is generally sufficient to act mildly on the bowels. Sulphur is a very efficient remedy in many of *the disorders attendant upon the cessation of the menses*.

2675. *In Dysentery*, Sulphur, from its well-known action on the rectum, has been advised by some continental physicians, with the view of establishing a healthy condition of that viscus. It is only applicable to the advanced stages of acute and chronic dysentery, and may prove useful if combined with the Bitartrate of Potash and other mild aperients.

2676. *In Chorea*, the Sulphur bath is very generally used in Paris. Baudelocque found it almost invariably efficacious. The power of the remedy in improving the condition of the capillary circulation, regulating the bowels, and augmenting the general vigour, renders it well deserving of greater attention than it has yet received in England. (Dr. Theo. Thompson.‡)

2677. *In Mercurial Salivation*, Sulphur is highly spoken of by Mr. Henry Smith.§ He states that it is superior to any other remedies for removing Mercury from the system; and considers its probable action to be, combining with the mineral and forming an almost inert Sulphuret of Mercury. "Its efficacy," he adds, "is now beyond a doubt; but if it cause much irritation of the bowels, which it occasionally does, it should be discontinued." *In Mercurial Palsy*, it was regarded almost as a specific by Dr. Lettsom.

2678. SULPHURIS IODIDUM. Iodide of Sulphur. IS_2. A compound of Iodine 79·75, Sulphur 20·25, in 100 parts.

Med. Prop. and Action. Similar to those of Iodine. It is used externally in the form of ointment (gr. x.—xx., Lard oz. j.).

Dose, gr. ½—v. daily, in the form of pill.

* Clin. Lect., vol. i. p. 566.
† Prov. Journ., Oct. 1, 1851.
‡ Lib. of Med., vol. ii. p. 214.
§ Med. Times, June 1847.

2679. *Therapeutic Uses. In Cutaneous Diseases*, particularly those of a squamous and tubercular character, the Iodide, externally applied, is strongly recommended by Alibert, Biett, Rayer, &c.; and Dr. Escolar,* of Madrid, employed it internally, in doses of gr. ij.—vj., with great advantage. Dr. Copland† speaks highly of its value. *In Acne Indurata and Rosacea*, it is advised by Dr. Todd;‡ *in Prurigo Senilis, Lepra, and Psoriasis*, by Dr. Davidson;§ and it has been found very effectual also in *Favus Confertus, Lupus, Tinea Capitis, Chronic Eczema, Lichen, Alopecia, &c.* Its application is attended with some heat and pain; and if applied to large surfaces, it sometimes produces Erysipelas. *In Sycosis*, the ointment (*ante*) is advised by Mr. E. Wilson.

2680. *In Humoral Asthma*, Dr. Copland‖ states that he has seen the inhalation of the vapour of the Iodide afford great temporary relief in one case.

2681. SULPHURIC ACID. Acidum Sulphuricum. Monohydrated Sulphuric Acid. HO, SO_3. Oil of Vitriol. Vitriolic Acid. A dense, oily-looking liquid. Sp. Gr 1·846. Eq. 40.

DILUTE SULPHURIC ACID. Acidum Sulphuricum Dilutum. Is made by mixing gradually fl. oz. iij. of Sulphuric Acid with fl. oz. xxxv. of Water. Sp. Gr. 1·087.

Med. Prop. and Action. The strong acid is a powerful escharotic; the parts touched with it first become white, but subsequently assume a brownish-black appearance. It is too corrosive for internal use. The dilute acid is refrigerant, astringent, and tonic, in doses of ♏x—xx. properly diluted. It is used as a refrigerant in fevers, as an astringent to check hæmorrhage and passive mucous discharges, and as a general tonic to improve digestion. It renders the urine acid, and proves useful in cases of phosphatic deposit. Being injurious to the teeth, it should be sucked through a quill or glass tube, and the mouth carefully washed with an alkaline solution after each dose. (See also ACIDS, part ii.)

Offic. Prep. 1. Acidum Sulphuricum Aromaticum (Sulphuric Acid fl oz. iij.; Rectified Spirit Oij. or q. s.; Cinnamon in coarse powder oz. ij.; Ginger in coarse powder oz. j.½. Mix the Sulphuric Acid gradually with fl. oz. xxxv. of the Spirit, then add the Cinnamon and the Ginger and digest for seven days, agitating frequently. Filter and add sufficient Rectified Spirit to make up the bulk to Oij.). Sp gr. 0·935. A very useful and agreeable tonic and aromatic. Dose, ♏v.—♏xxx., freely diluted.

2. Acidum Sulphuricum Dilutum (*ante*). Dose, ♏v.—♏xx., freely diluted.

Incompatibles. Alkalies and their Carbonates; some earths and earthy Carbonates; the Oxides of Metals; Solutions of the Chloride of Calcium; Acetates of Lead, Baryta, &c.

2682. *Therapeutic Uses. In Colica Pictonum, and Poisoning by Lead generally*, Sulphuric Acid is stated by M. Gendrin,¶ of Paris, to act both as a prophylactic and as a remedial agent.

* Med. Times, vol. xvi. p. 354.
† Dict. Pract. Med., vol. i. p. 31.
‡ Cyc. Pract. Med., art. Acne.
§ Lond. and Edin. Journ. of Med. Sciences, No. xii.
‖ Op. cit., p. 149.
¶ Lancet, April 4, 1846.

This opinion has been ably supported by Dr. H. Bennett. As a pupil of M. Gendrin, he saw in Paris a large number of cases of saturnine poisoning; and he states that, with the exception of one or two cases of Chronic Lead Palsy, he does not remember one which proved refractory to the treatment adopted. Mild cases yielded generally in about three days, severe ones in six or seven. The treatment consisted in the administration of Sulphuric Acid, largely diluted with water (gutt. xliv. ad Aq. Oj.), of which Oij.—Oiij. were given daily. Sometimes the first dose or two was rejected; but it was persevered in, and the stomach soon became accustomed to it. When it was retained, the abdominal pains generally began to diminish after the first or second day, the constipation gradually giving way when the pains had become less intense. No other medicine of any kind was administered; but it was considered a point of the greatest importance to combine its use with repeated Sulphur baths. (See SULPHUR.) This "acid lemonade," as it is called, proves, in numerous cases, a prophylactic against the poisonous vapours of Lead; in others, it only retards, but does not prevent, the eventual development of its poisonous effects. Valuable testimony to the value of Sulphuric Acid in these cases will be found in a letter from the manager of the British White-lead Works, at Birmingham.* He states that, before the introduction of the Sulphuric Acid drink, Lead Colic was of constant occurrence amongst his workmen; but that, for fifteen months after its first employment, there did not occur a single case.

2683. *In Hæmorrhage*, Dilute Sulphuric Acid has been advised as an internal remedy. Although less certain in its action than the Acetate of Lead, Gallic Acid, and other remedies, it is a very useful adjunct to other treatment. Dr. W. Frazer states that in *passive Hæmorrhage from the Lungs, Bowels and Uterus*, he frequently combines it in solution with Gallic Acid. *In Hæmatemesis*, it proves more useful than in the other forms, probably from the fact of its coming in contact with the bleeding surface. *In Uterine Hæmorrhage*, it has long been extensively prescribed in combination with Tincture of Opium and Infusion of Roses.

2684. *In Calculous Affections, in the Phosphatic Diathesis, and when the Urine is of an Alkaline character*, Sulphuric Acid has in many cases proved successful in correcting the alkalescence, but it is generally inferior in efficacy to the Nitro-muriatic Acid. Dose, mxv.—xxx., three or four times daily.

2685. *In Cholera* and the *painless Diarrhœa premonitory of Cholera*, Dilute Sulphuric Acid in full doses has been of late extensively prescribed. It is recommended to be given in doses

* Lancet, Dec. 17, 1842.

of ♏xx.—♏xxx., at short intervals of an hour or less. *In ordinary Choleraic Diarrhœa*, the same doses may be prescribed at longer intervals. This treatment has been advocated by Mr. Cox,* of Kensal-town, Dr. Fuller,† Dr. Millar, Mr. Willing,‡ and many others. In the *Non-inflammatory Diarrhœa of Children*, if the tongue be clean, the Dilute Acid may be given in doses of ♏ij.—♏v., or more, according to age, with great probability of success. *In Passive Diarrhœa*, depending upon a relaxed condition of the mucous membrane of the intestines, the dilute acid, in doses of ♏x.—xv., with T. Opii, generally proves successful. *In Puerperal Diarrhœa depending upon Intestinal Irritation*, Sir C. Locock§ states that the Dilute Sulphuric Acid, with a few drops of T. Opii, sometimes effectually restrains the diarrhœa, and improves the character of the tongue, particularly if there are aphthous ulcerations. *In the Diarrhœa of Typhoid Fever*, Dr. H. Kennedy‖ states, after ample experience, that by far the best remedy is Dilute Sulphuric Acid (f℥j.—f ℥iij. ad Aq. f ℥viij.). It is best to begin with a small dose and increase it as required. The diarrhœa should not be too suddenly checked. Opiate enemas to allay tenesmus are to be used.

2686. *In Leucorrhœa occurring in Cachectic Constitutions*, the Sulphuric and other mineral acids are stated to be sometimes very successful. More than two centuries ago, it was strongly recommended by Fonesca; ¶ and Weikard** employed it with great success. Fonesca's formula consisted of gutt. xij.—xv. of the strong acid in Oiv. of Rose-water. Of this, f ℥j. was taken every morning. It is rarely employed at present, but it may occasionally prove useful by its tonic property.

2687. *In the Profuse Perspirations of Phthisis*, the dilute acid, in doses of ♏x.—xxx., proves highly useful. Dr. Elliotson†† states that he has seen it check the most severe forms; and Dr. Christison‡‡ remarks that, of all internal remedies for the same end, none equals Sulphuric Acid, which, in this way, is one of the most efficacious astringent refrigerants. Dr. Graves advises it to be given in combination with Hyoscyamus.

2688. *In the advanced stages of continued Fevers, and in Typhus Fever*, the internal administration of Sulphuric Acid, with some tonic infusion, appears to be of great service. Prof. Huss§§ found that, when there was profound prostration, with commencing bed-sores and persistent diarrhœa, Sulphuric Acid, in combination with Infus. Rosæ or Infus. Arnicæ Mon., was productive of much benefit. (See Acids, part ii.)

* Pereira, Ed. 1854, vol. i. p. 371.
† Med. Times and Gaz., Jan. 10, 1851.
‡ Ibid., Oct. 29, 1853.
§ Lib. of Med., vol. i. p. 363.
‖ Dublin Quart. Journ. of Med., Aug. 1862.
¶ Consilia Med., t. i., consult. 21.
** Obs. Medic., p. 108.
†† Lectures, p. 146.
‡‡ Lib. of Med., vol. i. p. 290.
§§ Dub. Journ., Sept. 1845.

2689. *In Confluent Small-pox*, when the pustules are filled with a bloody sanies, and the urine contains portions of broken-down coagula of blood, Dilute Sulphuric Acid is stated by Dr. Thompson to be a remedy of the highest value, indeed the only one which can be relied upon. Its use should be combined with wine, tonics, &c.

2690. *In Scarlatina*, Dilute Sulphuric Acid, with the addition of a little syrup and water, forms an excellent refrigerant medicine, particularly for children. *For the Sore Throat*, which accompanies this disease, and also in *Cynanche Tonsillaris*, the Infusion of Roses, acidulated with Sulphuric Acid, forms an eligible gargle. The mouth should always be well washed out after its use.

2691. *In Syphilis*, Sulphuric Acid was, at one time, proposed as a remedy. Mr. Pearson* states that, in those cases in which Mercury is inadmissible, and which are attended with some degree of hectic, he has found Dilute Sulphuric Acid a useful remedy, affording a temporary check to the progress of the disease; that he has often seen it arrest the progress of venereal ulcers of the tonsils, and almost entirely remove eruptions of the skin; but these effects were only temporary, the disease reappearing when the medicine was discontinued. When, however, ulcers of the penis, groin, or throat, were indisposed to heal under a mercurial course, he found permanent benefit accrue from its use. *In Syphilitic Eruptions of the Skin*, Dr. Schedel† states that he has seen the best effects produced by its internal administration; and Dr. Fricke‡ states that Sulphuric Acid baths (f℥ij. of the strong acid to each bath) exert a favourable influence.

2692. *In Mercurial Ptyalism*, Mr. Pearson§ found great benefit from this acid, given internally, and used as a gargle, in conjunction with Decoct. Cinchonæ.

2693. *In Entropium*, the local application of the strong acid to the eyelid has been sometimes substituted for the scissors, &c. A fine wooden point is dipped into the strong acid, and transverse lines are drawn with it across the eyelid; a portion of skin is thus destroyed, and by subsequent cicatrization the eyelid will return to its normal position. It is more painful, and not so certain a remedy as the scissors, as it is impossible to regulate exactly the quantity of skin surface destroyed; and if too much is removed, the disease will be converted into Ectropium.

2694. *In some Cutaneous Diseases*, the internal use of this acid proves highly beneficial. Dr. A. Thompson‖ found it cure *Scabies*, when other remedies had failed; and in *Pruritus* it was used by

* On various Articles of Mat. Med., &c., pp. 189—191.

† Lib. of Med., vol. i. p. 440.

‡ Quoted by Dr. Graves, Clin. Lect., vol. ii. p. 427.

§ Op. cit.

‖ Lancet, April 1842.

Mr. Clutterbuck* with the best effects. I have seen benefit from it in some forms of *Lichen and in Urticaria. In Eczema, Scabies, Tinea Capitis, &c.*, an ointment composed of fl. drm. j. of the Acid, and oz. j. of Lard, proves highly useful. *In Ephelis*, the diluted acid (fʒj. ad Aq. fʒviij.) is advised as a lotion by Bateman.† *In the Bites of Rabid Animals*, Dr. W. Frazer‡ considers that the strong acid is the best caustic that can be employed.

2695. *In Paralysis, Chronic Rheumatism, Chronic Affections of the Joints, particularly in Morbus Coxarius*, great benefit is stated to have resulted from the persevering use of the Sulphuric Acid ointment (Acid fl. drm. j., Lard fl. oz. j.): its action is that of a powerful irritant.

2696. Sulphurous Acid. Acidum Sulphurosum. Sulphurous Acid (SO_2) dissolved in Water. Sp. Gr. 1·04. Prepared by distilling Sulphuric Acid with Wood Charcoal.

Med. Prop. and Action. Its value as an external application depends on its power of destroying parasitic vegetable growths. It has hence been found useful in those skin diseases, of which vegetable growths are the presumed cause. Externally applied, it causes irritation and redness, and it is therefore generally diluted with two or three parts of water. Lint soaked with this lotion is applied to the part and covered with oiled skin, or the strong solution of the acid may be added to an equal quantity of glycerine and the mixture painted on the affected skin;§ or the surface may be exposed to the fumes of burning Sulphur. The suffocating character of the vapour renders it unfit for internal administration.

2697. *Therapeutic Uses. In Tinea favosa, T. tonsurans, T. decalvans*, and *T. sycosa*, it was used with success by Dr. W. Jenner,‖ who introduced it. *In Favus* (*Tinea favosa*) the crusts are to be removed, the head shaved, and lint wet with Sulphurous Acid lotion is to be applied. The head is to be then covered with an oiled silk cap. Professor J. H. Bennett,¶ of Edinburgh, treated five cases of Favus in this manner. The worst case recovered, but the others relapsed after the Sulphurous Acid was suspended. Dr. Jenner is stated to have found it useful in *Pityriasis Versicolor*** (Liver Spots).

2698. Sumbul. Musk Root. The name of the root of an undetermined Umbelliferous plant, introduced to the notice of the profession in this country, in 1850, by Dr. Granville.++ It is distinct from the Sumbul (*Valeriana Jatamansi*) of India.

* Lancet, vol. ii. 1841, p. 59.
† Synopsis of Cutaneous Diseases, p. 441.
‡ Elements of Mat. Med., p. 12.
§ Garrod, Ess. Mat. Med. and Therap., p. 38.
‖ Med. Times and Gaz., Aug. 20, 1853.
¶ Monthly Journ. of Med. Science, April 1854.
** Med. Times and Gaz., Nov. 12, 1855.
†† The Sumbul, &c., London, 1850.

Med. Prop. and Action. From its physical characters and physiological effects, it appears to rank amongst the nervine stimulants, approximating probably more nearly to Valerian than to any other drug. It is used by the Russian physicians in *Low Typhoid Fevers* and in cases of *Asthenic Dysentery* and *Diarrhœa*. It has also been employed by them with alleged success in *Cholera*. Dr. Thielmann, of St. Petersburg, informed Drs. Wood and Bache that he depended mainly on this remedy in *Delirium Tremens*, having found it superior to Opium in its composing influence over that complaint.* Dr. Granville recommends it in *Gastric Spasm, Hysteria, Chlorosis, Amenorrhœa, Dysmenorrhœa, Paralysis of the Extremities, Epilepsy*, and other *Nervous Disorders*; but its efficacy in these cases is far from being established. Dr. Murawieff,† a Russian physician, has employed a resinous extract from this root, which he regards as its active principle, in doses of gr. j.—ij. three or four times a day, and affirms its utility in *Chronic Bronchitis, Chronic Pneumonia, Moist Asthma of old, anæmic, and scorbutic patients*, in *Atonic Dysentery, Leucorrhœa, Hypochondriasis*, and *Hysteria*.

Dose. It may be given in powder (gr. x.—gr. xx.), in infusion (oz. ss. ad Aq. fl. oz. vj.), or decoction (oz. ss., Aq. fl. oz. viij., boiled down to fl. oz. vj.) in doses of a tablespoonful three or four times a day, in Tincture (oz. iv., Diluted Alcohol Oij.) in doses of ℥xv.—xxv., or in the form of Extract (gr. v.—xv.).

TABACUM. See NICOTIANA TABACUM.

2699. TAMARINDUS INDICA. Tamarind Tree. *Nat. Ord.* Cæsalpineæ. *Linn. Syst.* Monadelphia Triandria. *Hab.* The East and West Indies, &c.

Med. Prop. and Therap. Uses. The pulp of the pods (*off.*) is gently laxative and refrigerant. It is advantageously employed as a beverage *in febrile and inflammatory diseases*, infused in warm water or milk (of the pulp oz. ij., Water or Milk Oij.), or a whey may be made by boiling it in milk. It has one great advantage in tropical countries, namely, that it is procurable at almost every village, and at a very small cost. Its purgative effect requires to be aided by the neutral salts, by Senna, Manna, &c., and the addition of a carminative obviates the griping and flatulence which it occasionally produces. Tamarind pulp contains Citric, Malic, and Tartaric Acids, and Bitartrate of Potash.

Offic. Prep. Confectio Sennæ. (See SENNA).

Dose, oz. ½, or more.

2700. TANACETUM VULGARE. Common Tansy. *Nat. Ord.* Compositæ. *Linn. Syst.* Syngenesia Superflua. *Hab.* Great Britain, &c.

Med. Prop. and Therap. Uses. The leaves are tonic and anthelmintic in doses of gr. xx.—gr. lx. They are best given in infusion (gr. cxx. ad Aq. Oj.). They were formerly extolled as a means of diminishing the frequency and violence of attacks of *Gout*,‡ but are now abandoned, except as an occasional vermifuge against *Lumbrici*, in which respect they are said to be effectual. The small activity which they possess depends upon a volatile oil and a bitter extractive.

2701. TANNIC ACID. Acidum Tannicum. Tannin. Is chiefly obtained from Galls, but exists largely in Catechu, Rhatany, and other vegetable astringents. *Comp.* $C_{54}H_{22}O_{34}$.

* U. S. Disp., p. 1492.

† Dublin. Quart. Journ. of Med., Feb. 1855.

‡ Dr. Clarke, Essays Phys. and Lit., vol. iii. p. 438.

Med. Prop. and Action. Powerful astringent, in doses of gr. ij.—gr. iij. twice a day, in chronic cases; gr. v.—gr. xx. in urgent cases, such as acute hæmorrhage, &c Dr. Alison* regards it also as a valuable peptic and nervine, and considers that it possesses the property of *retarding the growth of tubercle, and malignant disease.* Anti-periodic powers have also been assigned to it by M. Leriche.† It may be given either in pill or in solution. It possesses many advantages for administration, is not very bitter, is free from odour, does not induce nausea, is perfectly safe, may be continued for months without any ill effects, may be given at all hours, before or after meals, and it may be employed at the same time with Iron, Cod Liver Oil, bitters, &c. Dr. Garrod,‡ on the authority of Wohler and Frerichs, states, that when Tannic Acid is taken into the system, it undergoes a change, and appears in the urine as Gallic and Pyro-gallic acids, and a humus-like substance; and he consequently concludes that a given quantity of Tannic Acid must be inferior, as a remote astringent, to the same weight of Gallic Acid; that the former acts more powerfully as a local astringent, and the latter is more effectual as a remote one. He states that, from the presence of the humus-like matter, the urine of patients taking Tannic Acid sometimes becomes quite dark coloured, especially after it has been exposed to the air for a short time. Gelatine is not precipitated by the urine of patients taking Tannic Acid, showing the absence of that acid, but it strikes black with Persalts of Iron, from the presence of Gallic Acid.§ Externally, it may be applied in the form of lotion or wash (gr. ij.—gr. iij., Water fl. oz. j.), or ointment (gr. iv.—gr. v., Lard oz. j.), or in the form of fine powder.

Offic. Prep. 1. Suppositoria Acidi Tannici (Tannic Acid grs. xxiv.; Glycerine ℥xx.; Prepared Lard q. s.; White Wax q. s. Mix grs. lxxx. of the Lard and grs. xl. of the Wax in a water-bath, and when nearly cold add the Tannic Acid previously mixed with the Glycerine. The mass when solidified is to be divided into twelve cones, which are to be dipped in a mixture of three parts of Melted Wax and eight of Melted Lard.

2. Trochisci Acidi Tannici (Tannic Acid grs. ccclx.; Tincture of Tolu fl. oz. ss.; Powdered Refined Sugar oz. xxv.; Powdered Gum Arabic oz. j.; Mucilage of Gum Arabic fl. oz. ij.; Boiling Distilled Water fl. oz. j. To be made into 720 lozenges). Each lozenge contains gr. ss. of Tannin.

Dose of Tannic Acid, gr. iij.—gr. xx.

Contra-indications. 1, Hæmorrhages and fluxes wherever situated, which are only the relieving of an obstructed circulation, or of inflammatory or congestive action; 2, obstinate constipation; 3, Gastritis, and irritable states of the stomach.

2702. *Therapeutic Uses. In passive and exhausting Hæmorrhage, whether proceeding from the lungs, the stomach, the uterus, or the kidneys,* Tannin, internally administered in doses of gr. iij.—vj., three or four times a day, proves useful by its powerfully astringent and tonic properties. The contra-indications of its use are enumerated in the previous section. *In Menorrhagia,* Dr. Porta,‖ who advises it in this class of cases in doses of gr. iij., every three hours, draws the following conclusions respecting its use:—1. That whenever the uterus is the seat of irritation, giving rise to active hæmorrhages, and also when this discharge depends upon chronic Metritis, Tannin acts specifically upon the uterus; 2, that when the hæmorrhage depends

* Lond. Journ. of Med., Jan. 1, 1850: a valuable paper, from which many extracts have been made.

† Journ. de Méd. et de Chir., Dec. 1861.

‡ Lancet, Dec. 30, 1848.

§ Ess. Mat. Med. and Therap., p. 286.

‖ Archiv. Gen., April 1827.

upon acute Metritis, the inflammation should be subdued by blood-letting, &c., previous to its use; 3, that when the discharge depends upon organic disease of the uterus, it has no efficacy; 4, that preference should always be given to Tannin, in the treatment of Menorrhagia, as it is prompt in its effects, produces no unpleasant symptoms, and is well borne even by irritable stomachs. Dr. Alison finds it most serviceable when combined with a small portion of dilute Nitric Acid. In superficial *Hæmorrhage, as from the Gums, Hæmorrhoids, &c.*, Tannin, locally applied, either in the form of lotion (gr. iij.—iv. ad Aq. fl. oz. j.), or in fine powder dusted over the bleeding surface, proves an efficient styptic. *In Hæmaturia*, Dr. O. Rees* states that it is the best astringent he knows of, when given in the form of pill. *In Hæmoptysis, in the Hæmorrhage of Dysentery, and in threatened Abortion*, it is strongly advised by Dr. Cummins,† to be given in combination with Opium and Ipecacuanha. *In Epistaxis*, Tannin, finely powdered, is to be blown through a quill into the nostrils.

2703. *In Chronic Bronchial Catarrh*, occurring in weakly and elderly persons, unconnected with disease of the heart or great blood-vessels, and attended with copious and debilitating expectoration, the internal administration of Tannin, in doses of gr. j.—ij.—iij., twice or thrice daily, has greatly and gradually abated the secretion, relieved the frequent cough, and improved the strength. (Dr. Alison.)

2704. *Phthisis.* In the second stage of Phthisis, viz. that of softening, when Bronchial Catarrh has been present to a large extent, weakening the patient, causing frequent cough, and disturbing sleep, Tannin has been found by Dr. Alison to be equally as beneficial as it is in Chronic Catarrh (*ante*). But, he adds, in pulmonary disease, the greatest amount of benefit has obviously been derived when large cavities have been present in the lungs, the walls of which have thrown out large quantities of purulent matter mixed with blood. In such cases the discharge has been effectually controlled, and the rate of wear and tear of the system obviously restrained, without the induction of oppression or other evils. *In the profuse Perspirations of Phthisis*, he states that he also found it effectual, combined with Nitric Acid. M. Charvet‡ relates several cases in which its efficacy was very striking. He recommends it in repeated doses of gr. $\frac{1}{2}$, with or without Opium, and gradually increasing the dose to gr. iss. Rhubarb may be added if it cause constipation.

2705. *In the Chronic stage of Hooping-Cough*, Tannin is recommended by M. Sebregondi.§ He administers it every two

* Med. Gaz., July 11, 1851.
† Brit. and For. Med.-Chir. Rev., Oct. 1851.
‡ Bull. Thérap., July 1840.
§ Med. Zeitung, No 1.

hours in gr. ¼ doses, in conjunction with a sedative, as Conium, or with a purgative, as infusion of Senna. Under this treatment, the paroxysms entirely ceased. Dr. Durr* advises its combination with equal parts of Benzoin and fifty parts of Sugar. He found it very efficacious.

2706. *Diseases of the Genito-Urinary Organs, &c. In Atonic Leucorrhœa*, Dr. Alison found Tannin efficacious in restraining the discharge, and restoring the tone of the system. He prescribes an aqueous solution, combined with a small portion of dilute Nitric Acid. Dose, gr. ij.—iij., twice or thrice daily.

2707. *In Syphilitic Ulceration of the Cervix Uteri*, an application, first proposed by M. Ricord and strongly advised by Dr. Grandcourt,† is ℈j. of Tannin, dissolved in Oj. of light Claret, in which some aromatic herbs have been previously macerated.

2708. *In Prolapsus Ani*, Dr. Alison speaks favourably of the injection of an aqueous solution of Tannin. It is particularly indicated, when there is much relaxation of the parts. Reduced to a fine powder and mixed with lard, it is advised as an application to *hæmorrhoidal tumours*, when free from inflammation. *In Fissure of the Anus*, Dr. Van Holsbek‡ has used the following with great advantage:—℞ Tannin ʒj., Glycerine fʒxvj., M., introduced on a tent, night and morning.

2709. *In Gonorrhœa and Gleet*, M. Ricord speaks highly of an injection composed of gr. xviij. of Tannin dissolved in fʒvj. of Port Wine. On this point, Dr. Alison observes, in Gonorrhœa, chronic or about to become such, Tannin applied externally as a lotion has proved serviceable. Thus applied, it has caused no smarting, although the parts have been tender, and though it has been applied with little intermission for some days. *In Vaginitis*, M. Demarquay§ obtained excellent results from the Glycerole of Tannin, formed by dissolving Tannin (1-2 parts) in Glycerine (3 parts). It is locally applied on tampons of wadding to the sides of the vagina, by means of a speculum, and allowed to remain *in situ* for some hours.

2710. *Other Diseases. In Chronic Diarrhœa*, which has resisted all ordinary treatment, and which is not dependent on obstructive disease of the heart or liver, Tannin has proved, according to the experience of Dr. Alison, of surprising efficacy. In severe cases depending on an irritable weakly mucous membrane, he states that he has not known one failure; and of those examples connected with chronic inflammation and disorganization of the mucous membrane, only two proved beyond the influence of the remedy. It should be given with Opium in the form of pill.

* Prov. Journ., April 3, 1850.
† Rev. Méd.-Chir., March 1849.
‡ Dublin Med. Press, Jan. 14, 1857.
§ Ranking's Abstract, xxxii. p. 299, 1860.

2711. *In Dyspepsia*, Tannin proves very efficacious. The symptoms disappear under its use, the appetite increases, flatus and the sense of distension abate at the same time; and it has been found, in several instances, that the bowels, far from becoming constipated, acquired a more healthy tone, and actually became more free. It may be advantageously combined with dilute Nitric Acid. (Dr. Alison.)

2712. *In Rachitis*, Dr. Alison has the highest opinion of the internal use of Tannin, in doses of gr. ½—j., twice or thrice daily. He states that he has employed it in numerous cases, both in hospital and in private practice, and he considers that it not only possesses the power of arresting the progress of the disease, but also of correcting the tendency to it. If it actually possesses this power, it must act by invigorating the general health, and by imparting a more healthy character to the formative processes, by virtue of which Lime and other ingredients in the blood are more forcibly attracted to and fixed in the osseous structure. It deserves a further trial; in the hands of Dr. Alison, it appears to have been signally beneficial.

2713. *In Nervous Diseases, as Debility, Languor, Excitability, &c.*, Tannin proves, according to Dr. Alison, a permanent nervine. Great caution is necessary in its use, as if any inflammation, even sub-acute, be present, the disease may be aggravated. It may be advantageously combined with Camphor, Hops, or Henbane, and the use of the shower-bath. Dose, gr. ij.—iij., thrice daily.

2714. *In Mercurial Salivation*, Tannin is a valuable local application. Dr. Watson* found that pure Tannin, moistened and smeared upon the spongy gums, is remarkably efficacious in rendering them firmer and more comfortable. *In Idiopathic Hæmorrhage and Sponginess of the Gums*, it also proves most useful. *In Toothache*, Dr. Druitt states that Tannin is the most effectual of all remedies; thus—℞ Tannin ℈j., Gum Mastich. ℈ss., Spt. Ether. Sulph. f℥ss., M. It is particularly serviceable if the gum be flabby, or in case a bit of the gum grows in the cavity of a carious tooth.

2715. *In Anasarca accompanied with Albuminuria*, Dr. Garnier† considers that he derived great use from Tannin in daily doses of ℥ss.—℥j.

2716. *To Sore Nipples*, a solution of Tannin (gr. v. ad Aq. f℥j.) is spoken of by Dr. Druitt,‡ as an efficacious application.

2717. *In Diseases of the Eye*, M. Hairion§ speaks highly of

* Lectures, vol. i. p. 232.
† Archiv. Gén. de. Méd., Jan. 1859.
‡ Prov. Journ., Oct. 9, 1844.
§ Journ. de Pharm., Dec. 1850.

the efficacy of a strong solution of Tannin (one part of Tannin and three of Water) as a local application. Amongst other forms of disease in which it proved successful, are *Acute and Chronic Conjunctivitis, vegetating Granulations, Corneitis with or without Ulceration, Chemosis, and Pannus.* It is in this last form that it proved the most successful. He adds that a solution of the above strength produced no ill effects whatever; but general experience is against so powerful an application; one part of Tannin to twenty, thirty, or fifty parts of water, is a sufficient strength for ordinary cases. Thus diluted, it is a valuable astringent collyrium, and is much employed in modern practice. M. Hairion also employs it in the form of pomade, and in fine powder. In solution, it is regarded as preferable to all other applications by Dr. Cummins,* *in the Purulent Ophthalmia of infants.*

2718. *In some obstinate Skin Diseases, and to Ulcers with copious discharge*, the application of Tannin, either in solution (gr. iv.—v., Water f℥j.), or in ointment (gr. iv.—v., Lard ℥j.), has been found of great service. *In Porrigo Decalvans*, it is particularly recommended by M. Cazenave; the parts being also washed daily with an alkaline solution. In a case of *Vascular Tumour of the Orbit*, Mr. Haynes Walton † effected a cure by local injections of a saturated solution of Tannin; and Dr. Quinlan ‡ successfully treated by the same means (Tannin ʒj., Aq. f℥j.) a case of *Nævus* in a child of nine months old. *In Osmidrosis*, Mr. E. Wilson § states that in one case, where general means had failed to correct the fœtor of the perspiration, Tannin effected a complete cure.

2719. *In Intermittent Fevers*, M. Leriche‖ speaks highly of the value of Tannin in doses of ℈j.—ʒss., according to the intensity of the disease, taken three hours before the paroxysm. Two or three doses are usually sufficient to effect a cure, and it may be necessary to exhibit ʒj., or even ʒj.ss, at once.

2720. TARAXACUM. The fresh root of Taraxacum Dens-Leonis (Leontodon Taraxacum, *Linn.*). Dandelion. *Nat. Ord.* Compositæ. *Linn. Syst.* Syngenesia Æqualis. *Hab.* England, Europe, and Northern Asia. Gathered between September and February from meadows and pastures in Britain.

Med. Prop. and Action. Tonic and alterative. It is also a mild diuretic and diaphoretic. It appears to act particularly on the liver and to increase the biliary secretion, and has, in some instances, been advantageously substituted for Mercury when the latter has been inadmissible. It has also been highly spoken of as a deobstruent in visceral obstructions, and was supposed by Zimmerman to prove effectual in removing pulmonary tubercles.

* Op. cit.
† Ranking's Abstract, xxviii. p. 199.
‡ Dublin Hosp. Gaz., Sept. 15, 1858.
§ Diseases of the Skin, p. 367.
‖ Op. cit.

Its activity appears to depend upon a peculiar, crystallizable, bitter principle. *Taraxacine.*

Offic. Prep. 1. Decoctum Taraxaci (Dried Dandelion Root sliced and bruised oz. j.; Distilled Water Oiss. Boil for ten minutes and strain. The product should measure Oj.). Dose, fl. oz. j.—fl. oz. iij.

2. Extractum Taraxaci (prepared from the fresh expressed juice which is heated to 212° for ten minutes, strained, and evaporated by a water bath at a temperature not exceeding 160 to a proper consistence). Dose, gr. x.—gr. xx., or more. This extract is said to be far superior to those of the London and Edinburgh Pharmacopœias.

3. Succus Taraxaci (Dandelion Root lbs. vij.; Rectified Spirit q. s. To every three measures of juice expressed from the root one of Spirit is added. The mixture is set aside for seven days and filtered. It should be kept in a cool place). Dose, fl. drm. ss.—fl. drs. iij.

Incompatibles with the Decoction. Nitrate of Silver; Acetate of Lead; the Chloride and Bichloride of Mercury; Sulphate of Iron; and many vegetable astringent infusions, as galls, &c.

2721. *Therapeutic Uses. In Dyspepsia*, Taraxacum has obtained a high name, particularly in those cases where the liver is implicated, and in the indigestion of gouty subjects. Dr. Todd * speaks highly of it in inflammatory duodenal Dyspepsia, and recommends the following as an efficient formula :—℞ Ext. Tarax. ʒij., Potass. Nit. ʒss., Sp. Ether. Nit. fʒj., Inf. Aurant. fʒvj., M. coch. amp. bis terve die sumend. Dr. James Johnson† advises another formula, which has been found very serviceable when Mercury is contra-indicated, and there exists much sensibility of the nerves of the stomach :—℞ Decoct. Tarax. fʒvij., Ext. Tarax. ℈ij., Sodæ Carb. ℈ij., Ext. Sarzæ ʒj., T. Gent. Co. fʒss., M. cap. coch. mag. ij. bis die. This remedy is extolled by the German physicians, particularly by Kaempf.

2722. *In Chronic Inflammation of the Liver*, Taraxacum is a valuable remedy. Dr. Wilson Philip‡ considers that where Mercury is advisable, Taraxacum renders it more efficient; and that under certain circumstances it might be advantageously substituted for it. Sir R. Martin§ states, that *in the indolent Enlargements of the Liver, accompanied with torpid action of the Viscus, such as occur in Bengal*, he has found Mercury of little service; and adds that he has derived more advantage from the following formula, a spare diet and the external application of Acet. Cantharid. being employed at the same time :—℞ Ext. Tarax. gr. xxxvj., Ext. Aloes gr. xij., Ext. Acet. Colchici, Pulv. Ipecac. Rad. āā gr. vj., M. ft. pil. xij., cap. ij. omni nocte. *In Incipient Scirrhus of the Liver*, Dr. Pemberton,‖ who warmly advocates the use of this remedy in *all Chronic Hepatic Affections*, successfully employed Taraxacum in several instances, in doses of ʒss. of the extract, twice daily. As a remedy for chronic affections

* Cye. Pract. Med., vol. ii. p. 652.

† Influence of Tropical Climates, p. 662.

‡ On Indigestion, p. 221.

§ On the Influence of Tropical Climates, &c., p 285.

‖ On Dis. of the Abdominal Viscera, p. 42, et seq.

of the liver generally, it is favourably spoken of by Dr. Watson.* *In Jaundice* depending upon hepatic disease, it may be advantageously combined with small doses of Colchicum and other remedies.

2723. *In Phthisis*, Sir J. Clark † considers Taraxacum a very valuable remedy in tuberculous constitutions, from its power of diminishing abdominal plethora, and its especial influence on the urinary and biliary secretions. Hufeland also speaks highly of it in tuberculous subjects; and Zimmerman‡ considers that it is the best remedy for the dispersion of pulmonary tubercles.

2724. *In Dysmenorrhœa*, Dr. Rigby§ considers that Taraxacum proves highly useful, by keeping up a healthy action of the liver, and acting on the cutaneous surface. He directs half a teaspoonful of the extract to be taken in a little warm milk every night. Thus given, it is by no means disagreeable.

2725. *In many Chronic Cutaneous Diseases*, especially when connected with visceral derangement, it proves highly useful as an alterative and diaphoretic.

2726. Tartaric Acid. Acidum Tartaricum. 2 HO, $C_8H_4O_{10}$. It is obtained from the Acid Tartrate of Potash.

Med. Prop. and Action. Refrigerant. Although cheaper, and consequently more used, than Citric Acid, it is inferior to it in many respects, being more apt to disorder the digestive organs, to produce colic, and to purge. In large doses it acts as an irritant poison. One ounce dissolved in half a pint of water caused violent inflammation of the alimentary canal and death in nine days ‖ When its employment in medicinal doses is followed by a red and dry tongue, it ought to be discontinued. (Dr. Thompson.¶) It is said by Annesley to be the best artificial solvent of mucus, and may be advantageously given when this exists largely in the bowels. It is often given in the form of "effervescing powders" (Sodæ Bicarb. gr. xxx., Acid. Tart. gr. xxv.). If Bicarbonate of Potash be added to a solution of Tartaric Acid, the Bitartrate of Potash is precipitated; but if the acid be added to the Bicarbonate, it may be added to the point of saturation and remain perfectly soluble (Squire).

Dose, gr x.—gr. xx., dissolved in water and sweetened.

Incompatibles. Nitric and Sulphuric Acids; Alkalies and their Carbonates; the salts of Potash, Lime, Lead, and Silver; most earths, and their Carbonates.

2727. *Therapeutic Uses. In inflammatory and febrile Diseases*, an agreeable refrigerant drink is made by diluting the acid largely with water, and sweetening with sugar to the taste. If it cause nervous irritability, or a dry red tongue, it should be discontinued (*ante*).

2728. *In Irritability of the Stomach, Nausea, Vomiting, &c.*, effervescing draughts (*ante*) are often very effectual in allaying the morbid irritation. A few drops of T. Opii or Acid. Hydro-

* Lectures, vol. ii. p. 548.
† Cyc. Pract. Med., vol. iv. p. 335.
‡ Traité de la Malad. Scroph., p. 275.
§ On Dysmenorrhœa, p. 59.
‖ Taylor's Medical Jurisprudence, 1852, p. 52.
¶ Cyc. Pract. Med., vol. iii. p. 594.

cyan. or T. Calumb. may be advantageously added. Its efficacy is partly due to the generation of Carbonic Acid gas, resulting from the mixture.

2729. *In Dyspepsia and other Diseases, attended with copious secretion of mucus*, Tartaric Acid, either alone or combined with a base, particularly the Bitartrate of Potash, is stated by Mr. Morgan,* of Glasgow, to be of the highest service. It has been advised in *Dysentery*.

2730. *a.* Terebinthina Argentoratensis. Strasburgh Turpentine. Obtained from Pinus Picea. Contains about 35 per cent. of Volatile Oil.

b. Terebinthina Canadensis. Canadian Balsam or Turpentine. Obtained from Abies Balsamea. Officinal. Contains about 18 per cent. of Volatile Oil. *Source*, Canada.

c. Terebinthina Chia. Chian, or Chio Turpentine. Obtained from Pistacia Terebinthus. *Nat. Ord.* Terebinthaceæ. *Source*, Isle of Chio and Southern Europe.

d. Terebinthina Veneta seu Laricea. Venice Turpentine. Obtained from Larix Europæa. Contains from 18 to 25 per cent. of the Volatile Oil.

e. Terebinthina Vulgaris. Common Turpentine. Obtained from various species of Pinus. Contains from 5 to 25 per cent. of the Volatile Oil.

The above terebinthinates closely resemble each other in medicinal properties, being stimulant and diuretic, and exercising a powerful effect upon mucous membranes, particularly those of the genito-urinary organs. Their activity depends upon the Volatile Oil which they contain, those having the largest quantity being the most efficacious; but the Canada variety is often preferred on account of its less disagreeable flavour.

The dose is gr. xx.—gr. lx., in emulsion with yolk of egg or mucilage, or the softer kinds may be solidified by the addition of calcined Magnesia, and given in the form of a pill. They formerly entered into the composition of several officinal plasters and ointments.

Therapeutic Uses. Similar to those of Oleum Terebinthinæ, but much less certain and speedy in their operation.

2731. *In Chronic Gleet*, Chian Turpentine may sometimes be given internally with excellent effect. *In Chronic Inflammation of the Prostate Gland*, it is spoken of in the highest terms by Mr. Adams,† who considers that it exercises a specific action on the prostatic part of the urethra, and on the gland itself.

* Edin. Med. Surg. Journ., No. lv. p. 16.

† On the Anatomy and Diseases of the Prostate Gland, 8vo, Lond. 1851.

2732. TEREBINTHINÆ OLEUM. Oil of Turpentine. $C_{20}H_{16}$. Sometimes called Spirit or Essence of Turpentine. Is obtained by distillation from the Turpentine of Pinus Palustris, Pinus Tæda, and sometimes Pinus Pinaster. When re-distilled, it is called Purified or Rectified Oil of Turpentine. *Comp.* Carbon 88·23, Hydrogen 11·76, in 100 parts; or 20 Eq. Carbon = 120, + 16 Hydrogen = 16 = 136, Eq. Wt.

Med. Prop. and Action. Diuretic, astringent, and styptic, in doses of ♏viij.—♏xxx.; anthelmintic purgative, or as a revulsive, fl. drs ij.—fl. oz. j. It is best given in emulsion with gum, or with the yolk of an egg, and Dr. Copland* advises the addition of T. Capsici, which corrects the nausea which the oil occasionally produces. When swallowed, it causes a sensation of warmth in the stomach, at first acting as a stimulant, and afterwards as a depressant of the arterial system: it becomes absorbed into the circulation, and displays its presence in the urine, in the cutaneous secretion, and in the breath. In whatever manner it is introduced into the system, it communicates a violet odour to the urine. When the vapour is inspired, it is perceptible in the urine in fifteen minutes; and when rubbed on the skin, in about twenty-five minutes. In large doses it produces nausea, vertigo, &c., and in some instances, a cathartic operation: this, however, is very uncertain; but when it does occur, it interferes with its action as a diuretic, its only effect then upon the urine being to convey to it the peculiar violet odour. It is chiefly in small or moderate doses that it seems to affect the urinary organs. In some persons, Turpentine, in any form, or in any dose, produces very unpleasant effects: coma, intoxication, violent strangury, eruptions of the skin, &c. M. Bouchardt† found the following symptoms induced by his exposure for five or six hours to the vapour of Turpentine:—Sleeplessness, constant restlessness, heat of skin, pulse increased from 65 to 86 beats in the minute, some difficulty in passing the urine, which smelt strongly of Turpentine. On the following day, there was great lassitude, with weight and pain in the region of the kidneys; these symptoms did not pass off for two or three days. Dr. T. Smith cautions against giving it alone in cold weather, as under such circumstances it tends, like other hydro-carbons, to supply fuel for the evolution of animal heat, rather than to exhibit any therapeutic property. To insure its purgative effect, therefore, it should be conjoined with Castor Oil. Externally applied, it is a valuable counter-irritant, acting speedily and effectually. For ordinary purposes, the Linimentum Terebinthinæ is a good formula. Dr. Copland places much confidence in Turpentine fomentations, which are made by steeping flannel in hot water, wringing it out dry, and sprinkling the surface with Spirit of Turpentine. It is a most valuable mode of application. For the purpose of inhalation, Dr. Smith‡ advises the vapour to be diffused through an apartment by aid of a spirit-lamp. As a bath, he advises Soda lb. ij., Camphine Oss., Oil of Rosemary ℥ss., Water q. s. He states that it calms the pulse, softens the skin, and renders the respiration easy. When its internal use causes strangury, diluents and demulcents should be drunk plentifully, and opiate enemas employed.

Offic. Prep. 1. Confectio Terebinthinæ (Oil of Turpentine fl. oz. j.; Powdered Liquorice Root oz. j.; Clarified Honey oz. ij.). Given to children as an anthelmintic. Dose, oz. ¼—oz. ½.

2. Enema Terebinthinæ (Oil of Turpentine fl. oz. j.; Mucilage of Starch fl. oz. xv.).

3. Linimentum Terebinthinæ (Oil of Turpentine fl. oz. v.; Ointment of Resin oz. viij. Prepared by adding the Oil of Turpentine gradually to the Melted Ointment, and stirring until a uniform liniment is obtained).

* Med. Phys. Journ., vol. xlvi. pp. 185—203.

† Bouchardt's Annuaire, 1846.

‡ Lond. Journ. of Med., April 1850

4. Linimentum Terebinthinæ Aceticum (Oil of Turpentine fl. oz. j.; Acetic Acid fl. oz. j.; Liniment of Camphor fl. oz. j.). A powerful rubefacient and counter-irritant.

5. Unguentum Terebinthinæ (Oil of Turpentine fl. oz. j.; Coarsely Powdered Resin grs. lx.; Yellow Wax oz. ss.; Prepared Lard oz. ss. The ingredients are melted together by the heat of a steam or water bath).

Dose of Oil of Turpentine: as a styptic, astringent, and diuretic, ℥v.—℥xxx.; as a stimulant, ℥xxx.—fl. drm. j.; as an anthelmintic purgative, fl. drs. ij.—fl. oz. j.

2733. *Therapeutic Uses. In Typhus and Typhoid Fevers, and in the advanced stages of continued and inflammatory Fevers*, the Spirit of Turpentine by mouth, in enemata, or externally in fomentation, is a remedy of the highest value. When the vital energics are greatly depressed, *when Coma or Stupor are present, or if Delirium with Subsultus Tendinum, &c., exists*, Turpentine, either by mouth or in the form of enema, often arouses the vital powers, and exercises a most beneficial influence. *In the Tympanitis of Fever*, it also proves most essentially useful. Drs. Graves,* Copland,† and others, speak highly of its efficacy; the former advises it in doses of f ʒj., with f ʒiss. of Castor Oil, to be repeated every sixth hour; and the latter administers it in enemata, and applies it externally to the abdomen in fomentations. I have seen striking benefit result from its employment; indeed, there are few remedies which deserve more confidence. *In Intestinal Hæmorrhage, in Hiccough, &c.*, it also proves highly serviceable, removing these conditions and tranquillizing the nervous system. Prof. Huss‡ states that, in the epidemic Typhoid Fever which prevailed at Stockholm in 1841-2, he found Turpentine fomentations, as described above, extremely useful; they were applied to the abdomen when the diarrhœa was profuse, and to the chest when pulmonary complications existed. Its external application should never be omitted in the latter stages of Typhus. It may also be given internally with advantage. Dr. Shapter§ considers that, in the third or last stage of *Remittent Fever*, the Oil of Turpentine, in doses of gutt. xxx., is perhaps one of the most safe and useful medicines which we can employ. He remarks, that it often immediately controls the character of the symptoms. and changes entirely the nature of the alvine secretions. Stimulants, &c., are advisable at the same time. Dr. Ward,‖ in the treatment of the *Malarious Intermittents of Ceylon*, found great advantage from the administration of f ʒss.—f ʒj. of Spirits of Turpentine (with a sufficient quantity of Castor Oil to act as a cathartic) at the commencement of the cold stage. The remedy was repeated every succeeding cold stage, and he frequently found no other treatment

* Clin. Lect., vol. i. p. 132, et seq.
† Dict. Pract. Med., art. Fever.
‡ Dub. Journ., Sept. 1845.
§ Lib. of Med., vol. i. p. 253.
‖ Amer. Med. Times, Sept. 15, 1860.

was required. *In the Bronchitis of Typhus Fever and other adynamic Fevers*, the effects of Turpentine internally, to use the words of Dr. Murchison,* are sometimes marvellous. In extreme cases, when the tubes are filled with secretion, the face livid, and the patient has not the strength to cough, or when other remedies fail, recourse should be had to Turpentine. It may be given as follows :—℞ Ol. Terebinth. ♏x.—xx., Æther. Sulphuric. vel Chloric. ♏xv.—xxx., Spt. Juniper Co. ♏xxx., Mist. Acaciæ f℥iss., M. This may be repeated every two hours at first, until the desired effect is produced. After a few doses, the patient often begins to cough and to expectorate large quantities of viscid mucus, with great relief to the respiratory symptoms. Under its use the urine is increased. Next to Turpentine, Dr. Murchison thinks the following worth a trial :—℞ Creasoti, Acid. Acetic. āā ♏viij., Spt. Æther. Co., Syrup. āā f℥ss., Aquæ f℥vij., M., sumat coch. mag. ij. 2â vel 3â qq. horâ.

2734. *In Puerperal Fever*, the internal exhibition of the Oil of Turpentine, in doses of one or two tablespoonfuls every three or four hours, in cold water, and sweetened, was first proposed by Dr. Brenan,† of Dublin, in 1814. He regarded it almost as a specific; and in this opinion he is joined by Drs. Douglas, Blundell, Copland, and other judicious practitioners. Dr. Murphy‡ observes that he agrees with Dr. Copland§ in stating that there is certainly no remedy so efficacious as a decided and judicious use of the Spirit of Turpentine, in doses of f℥ss., with Castor Oil, every three or four hours. Dr. Dewees‖ regards it as a doubtful remedy, and limits its use to the termination of the first stage. Dr. J. Clarke tried it fairly, but without success; and Dr. D. Davis¶ was thoroughly disappointed in its efficacy. Sir C. Locock** states that it is now and then successful; he adds, "But as a forlorn hope, after effusion has taken place, we have known it tried, and in two cases with success." Dr. Churchill,†† after observing that he has never seen it exert any remarkable influence on the disease, judiciously observes, that it is certainly beneficial when the intestines are tympanitic, especially in the form of enema, and as a counter-irritant to the abdomen. Its extremely nauseous taste is a great objection to its use. M. Trousseau speaks favourably of the combination of Opium and Turpentine in this class of Fevers.‡‡

2735. *In Inflammation*, Dr. Copland§§ observes that, after

* On Fevers, 1862, p. 283.
† Thoughts on Puerperal Fever, Lond. 1814.
‡ Med. Gaz., Jan. 28, 1850.
§ Loc. cit.
‖ Diseases of Females, p. 453.
¶ Obstetric Medicine, p. 895.
** Lib. of Med., vol. i. p. 355.
†† Theory and Practice of Midwifery, p. 471.
‡‡ Bull. Gén. de Thérap., May 30, 1858.
§§ Dict. Pract. Med., vol. ii. p. 410, &c.

watching its effects for thirty years, he believes that there is no remedy more deserving of confidence, if appropriately and prudently prescribed. The operation of this medicine depends upon the dose, the frequency of the repetition, and the combination of it with other remedies. Hence, it may be made available in every form of inflammation. In the sthenic form, it is remarkably serviceable after depletions have been duly practised, and it may be used both externally and internally—in draughts or in enemata—in liniments, embrocations, or fomentations. In all inflammations tending to copious effusion, or to fibrinous exudation, after depletion has been resorted to, and more especially when it becomes doubtful whether general depletion should be prescribed, or repeated, or not, this substance, in hands experienced in its operation, is a most valuable remedy. In these cases it should be given in quantity sufficient to act upon the bowels and kidneys—either f℥j. thrice daily, or from f℥iij. to f℥vj. once a day, alone, or with Castor Oil. It may also be administered once or twice a day in enemata, in larger quantities. Where it is desired to produce as rapid an impression as possible on the malady, not only should the one mode of exhibition be made subsidiary to the other, but both should be aided by the external use of the substance, in the form of a warm embrocation or fomentation. In such cases, Dr. Copland directs several folds of flannel, large in proportion to the extent and severity of the disease, to be wrung as dry as possible, out of very hot water, to be instantly freely sprinkled with Spirit of Turpentine (*Turpentine stupes*), and applied immediately over the affected organ—to be closely covered, by wash-leather or a dry cloth, to prevent evaporation—to be kept thus applied as long as possible or as the patient may endure it, and to be renewed as circumstances may require. In less severe cases, or at the commencement of inflammation, he has found a single application of this fomentation instantly arrest the disease, without depletion or any other means beyond a purgative being employed. The Spirit of Turpentine thus employed internally or externally, or both, need not prevent a recourse to Calomel or other mercurials; but may be used, particularly in the more urgent cases, in conjunction with them; the former aiding the operation of the latter. *In Chronic Inflammations*, liniments containing this substance may be used either as such, or as embrocations, or they may be applied over the affected organ, on the surface of warm flannel as described above. Although a remedy of great value in all forms of inflammation, its use requires much discrimination and experience, in order to obtain its proper effects; and in some acute inflammations, if injudiciously administered, it may be productive of much mischief. *In the advanced stages of Inflammation of the Brain*, attended by coma, rapid, irregular, and trembling pulse, with

great depression of the vital energies, Dr. Copland found the following draught, given four hours after a full dose of Calomel and Camphor, productive of the best effects :—℞ Ol. Terebinth., Ol. Ricini āā ʒij., T. Capsici ɱxij., Ol. Cajeputi ɱvj., Aq. Menth. Vir. fʒiss., M. *In Sub-acute and Consecutive Nephritis*, he advises Turpentine embrocations to the loins ; or the Spirit may be given internally in small doses, with the view of exciting the nervous energy of the kidneys and the action of the congested vessels ; but much caution is necessary in the selection of the cases in which it is applicable. In plethoric subjects, and where the vascular action and tone are not remarkably depressed, the local abstraction of blood, by cupping over the loins, should precede the use of these remedies. *In Acute Laryngitis*, Dr. Copland speaks in the highest terms of the application of hot Turpentine fomentations to the throat. If applied early and with decision, he observes that they have a remarkable effect in restraining inflammatory action, in parts near those to which they are applied, and in preventing and arresting the effusions and infiltrations consequent on inflammation. *In the Acute and Chronic forms of Pneumonia, Pleuritis, and Bronchitis*, the hot Turpentine fomentations, as directed above, prove most serviceable. Dr. Graves* prefers a liniment composed of Ol. Terebinth. fʒiss., Vitel. Ovi j., Acid. Acet. Fort. fʒj., Aq. fʒiij. Rub the three latter together, and then incorporate the Turpentine. *In Enteritis, Peritonitis, and Gastritis*, the same fomentations, diligently applied, are productive of decided benefit in the majority of cases.

2736. *In Hæmorrhage*, the Oil of Turpentine has long been highly esteemed as a styptic ; indeed, John Hunter regarded it as the best, if not the only true one. Its use is generally confined to atonic and passive Hæmorrhage, but Dr. Copland† considers that the existence of inflammatory action does not contra-indicate its use, for it lowers, he observes, vascular excitement, and prevents effusion and the formation of coagulable lymph, especially when given in sufficiently large or repeated doses. When the powers of life are much impaired, and after copious evacuations of blood, small and frequent doses of it only ought to be given, conjoined with tonics, aromatics, restoratives, &c. *In Hæmoptysis*, it was first recommended by John Hunter ; and has been advised by Dr. Theophilus Thompson,‡ who observes that it is probably one of the most certain and suitable remedies in the majority of instances. He prescribes it thus :—℞ Sp. Terebinth. fʒij., Mucilag. Acac. fʒij., Matico Infus. vel Aq. Cinnam. fʒiv., T. Capsici fʒss., M. cap. fʒj. pro dos. *In Hæmop-*

* Clin. Lect., vol. ii. p. 21.
† Dict. Pract. Med., vol. ii. p. 69.
‡ Lancet, July 19, 1851.

tysis connected with Phthisis, Dr. Marshall Hughes* states that he has frequently found f℥j. of the Spirit of Turpentine, taken at each accession of the hæmorrhage, succeed when other remedies have failed to arrest the bleeding. Dr. T. Smith suggests the inhalation of the vapour as a means of checking the discharge; and Dr. Copland advises Turpentine fomentations (a hot flannel sprinkled with the Spirit), with the same view. *In Hæmatemesis*, it proved successful in the hands of Hunter, who states that he has seldom found it fail, when given in doses of gutt. x., every two or three hours. In this case, its action is probably partly direct, the liquid coming in contact with the bleeding surface. *In Hæmaturia*, it proved eminently successful in the hands of Mr. Vincent,† who administered it internally in doses of gutt. x. every two or three hours. It is contra-indicated when the hæmorrhage is associated with inflammation or congestion. *In extreme or prolonged cases of Uterine Hæmorrhage*, Dr. Copland‡ states that he has had recourse to the Spirit of Turpentine, either in draught or in an enema, or in the form of fomentation applied over the hypogastrium, and always with success. *In Hæmorrhage after Abortion, as well as after Delivery at the full period*, but particularly when the hæmorrhage proceeds from inefficient contraction of the uterus, and retention of the ovum or some portion of the appendages of the embryo, Dr. Copland§ states that he has prescribed with complete success an enema composed of f℥j.—f℥ij. of the Oleum Terebinth. in a pint of water gruel. *In profuse Hæmorrhage after the extraction of a Tooth*, Mr. Vincent‖ states that the most effectual application is the Oil of Turpentine; care being taken that no coagula be allowed to form, to interfere with the direct application of the remedy. He adds that he has seen the most profuse hæmorrhage arrested by these means. *In Hæmorrhage from Piles*, its internal exhibition, in doses of f℥ss. three or four times a day, according to Dr. Burne¶ not only arrests the bleeding, but prevents its recurrence. It is a valuable remedy in these cases. *In Epistaxis and in Hæmorrhage from Wounds*, it may also be given internally, with great advantage; and *in that from Leech-bites*, it proves effectual when locally applied.

2737. *Nervous and Spasmodic Affections. In Hysteria*, during a paroxysm, a Turpentine enema (fl. oz. j. ad Aq. Hordei fl. oz. viij.) is a most effectual remedy. Dr. Conolly** states that he has seen complete resolution of rigid and apparently intractable spasm ensue a few seconds after an enema of this description. It is also a valuable internal remedy in these cases.

* Guy's Hosp. Reports, vol. ix.
† Edin. Med. and Surg. Journ., Jan 1849.
‡ Op. cit., vol. ii. p. 113.
§ Op. cit., vol. i. p. 11.
‖ Op. cit.
¶ Cyc. Pract. Med., vol. iv. p. 594.
** Ibid, vol. ii. p. 578.

2738. *In Asthma and Angina Pectoris*, particularly when occurring in old and debilitated subjects, great relief is experienced from applying to the chest flannels steeped in hot Spirit of Turpentine, or, which is perhaps preferable, a flannel wrung out of hot water, and sprinkled with the oil.

2739. *In Epilepsy*, it has been advised by Drs. Percival, Latham, Foville, Copland, Graves, and others. Dr. Watson* observes that if he were called upon to name any single drug from which, in ordinary cases of Epilepsy, he should most hope for relief, he should mention Turpentine. Dr. Cheyne† relates two cases of what he designates Epilepsia Stomachica, which were successfully treated by giving, once a week, a Calomel pill at bedtime, and on the following morning this draught:— ℞ Ol. Ricini f℥iij., Ol. Terebinth. f℥ij., Mucilag. Acaciæ f℥iij., Aq. Menth. Vir. f℥vj., M. The form of Epilepsy in which we may expect this drug to be the most beneficial is that dependent upon an overloaded state of the bowels, or on the presence of worms (a very common cause); in these cases, it should be given in doses sufficient to prove cathartic. It may also partly act as a derivative. These remarks apply equally to *Chorea* and to some other nervous affections.

2740. *In Puerperal Convulsions*, enemas containing Turpentine prove of the highest service. They are advised by Sir C. Locock,‡ both in the active and in the atonic varieties. *In the Convulsions of Children*, Dr. Copland§ advises the use of a Turpentine liniment, to be rubbed on the epigastrium and abdomen or along the spine. Dr. Graves‖ mentions a case in which the following mixture proved successful, when other remedies had failed:— ℞ Ol. Terebinth. f℥j., Ol. Ricini f℥iv., Syr. Papav., Mucilag. Arab., Aq. Fœnic. ãã f℥ij., M. cap. f℥j. 3tiis horis.

2741. *In Tetanus*, Turpentine often appears to exercise a powerful influence. Dr. Philips ¶ details a case in which the jaw fell immediately after the administration of an enema containing it; and other instances are recorded, in which it appears to have mitigated the severity of the symptoms. It is chiefly adapted for idiopathic Tetanus. In a case under my care, relaxation of the spasms followed the exhibition of f℥ij. of Ol. Terebinth., with f℥j. of Ol. Ricini; the patient soon afterwards passing six long worms (*Lumbrici*). It should not be trusted to alone, but it proves a valuable adjunct to other remedial measures. It is the best cathartic which can be employed, and its external application in the form of liniment sometimes proves of service.

2742. *In Neuralgic Affections*, the Spirit of Turpentine often proves most useful. A strong recommendation of it is, observes

* Lectures, vol. i. p. 654. 1848.
† Cyc. Pract. Med., vol. ii. p. 97.
‡ Ibid., p. 482.
§ Op. cit., vol. i. p. 431.
‖ Clin. Lect., vol. i. p. 584.
¶ Med.-Chir. Trans., vol. vi. p. 65.

Dr. Copland,* that it is equally appropriate to the inflammatory and to the non-inflammatory states of the affection, and the fact of relapses, or a return of the complaint, being less frequent after the use of it than after any other remedy. *In Sciatica*, it was found effectual by Dr. Home,† in *Lumbago* by Darwin,‡ and in various other neuralgic affections by Dr. Copland. M. Ducros§ states that he has repeatedly seen cases of Sciatica which had resisted ordinary means yield to enemata containing the Oil of Turpentine. In one instance the pain yielded to one enema containing f℥j. of the oil; but generally, in order to effect a cure, the number of enemas required is greater than in this case. Dr. Watson‖ suggests that it is chiefly useful in those cases connected with a disordered state of the kidneys. *In the Neuralgic pain in the left side occurring in hysterical females*, the Turpentine liniment or fomentations (as directed in *Inflammation*) often proves signally useful.

2743. *Diseases of the Eye. In Syphilitic and Idiopathic Iritis, in Rheumatic Iritis, in incipient Gangrene of the Cornea, and in Chronic Choroiditis*, the internal exhibition of the Spirit of Turpentine has been found highly serviceable. *In Iritis*, it was first recommended by Mr. Carmichael,¶ in doses of f℥j., thrice daily. Strangury may be obviated by the copious administration of Linseed tea; and a few grains of the Carbonate of Soda will correct any acidity to which it may give rise. It is best given in emulsion, and proves particularly serviceable in arthritic cases, and in those in which Mercury is contra-indicated. M. Trinchinetti** has published numerous cases of the above-named diseases of the eye, treated solely and successfully by the Oil of Turpentine, given in the manner advised by Mr. Carmichael; and Mr. Hocken,†† Mr. Arnott,‡‡ and others, bear testimony to its value in these cases. Speaking of its employment in Iritis, Mr. Guthrie§§ reports that he found the oil in some cases succeed admirably; in others, it was of little service; and in some, unequal to complete a cure. *In Amaurosis*, Dr. Copland‖‖ found it successful in two cases; and in this disease, as well as in *Hydrophthalmia*, Mr. Hocken¶¶ employed it with the best results. Mr. C. Kidd*** relates two cases of *night blindness* which completely yielded to its internal use; and Mr. Howard††† expresses

* Dict. Pract. Med., p. 891, vol. ii.
† Clin. Experiments, p. 247.
‡ Zoonomia, vol. ii.
§ Brit. and For. Med. Rev., No. ii. p. 569.
‖ Lectures, vol. i. p. 717.
¶ On the Efficacy of Turpentine in Inflammation of the Eye, &c., 8vo, 1829.
** Journ. del Scien. Med-Chirurg., Aug. 1836.
†† Lectures on Amaurosis, Lancet, May 8, 1841.
‡‡ Lond. Med. Gaz., April 13, 1839.
§§ Ibid., vol. iv. p. 509.
‖‖ Dict. Pract. Med., vol. i. p. 61.
¶¶ Op. cit.
*** Dub. Med. Press, May 10, 1843.
††† Pathology of the Eye, p. 504.

his opinion that it proves useful in this disease and in *day blindness*. It should be given in the doses advised by Mr. Carmichael.

2744. *Nervous Headaches* are sometimes much benefited by the internal exhibition of the Spirit of Turpentine. A very aggravated case is related by Dr. Mebe,* which, after resisting for several years a variety of medicines, yielded completely to Ol. Terebinth., in doses of gutt. x. every two hours. In the nervous and hysterical headaches of young women, Dr. Graves† places much reliance on this medicine, given in doses of f℥j. to f℥ij., and repeated according to its effects. "The best vehicle," he observes, "is cold water; some will bear and derive advantage from two or three doses of this medicine in the day, experiencing from its use a diminution of headache, the removal of flatulence, together with a moderate action on the bowels and kidneys." It may also be employed in the form of enema. From the dysuria, &c., which it occasionally causes, the medicine cannot, in some instances, be persevered in.

2745. *In Catalepsy*, a Turpentine enema, aided by diligent friction of a Terebinthinate liniment on the spine, is often the most effectual means of causing a cessation of the paroxysm.

2746. *Diseases of the Abdominal Viscera. In Spasmodic Affections of the Bowels*, great relief is often afforded by the application of Turpentine fomentations (*ante*) to the abdomen. They are often effectual when other fomentations fail. The oil (fl. oz. ij.) may also, in obstinate cases, be given internally, conjoined with Oleum Ricini. *In Flatulence and Flatulent Colic*, a Turpentine enema is often productive of much good. *In Ileus*, Dr. Copland‡ remarks, that notwithstanding constant or even fæculent vomiting, advantage will sometimes be derived from a full dose (f℥iv.—f℥x.) of the unrectified Oil of Turpentine, taken with aromatics, &c. He adds that he has seen the vomiting cease, and the distension of the abdomen rapidly subside immediately after this draught, which should be repeated if the former has been thrown off. *In Colica Pictonum*, it also proves of great service.

2747. *In Cholera*, the Spirit of Turpentine applied by means of hot flannels, and by diligent friction over the abdomen, is one of the best external applications which can be resorted to. It may also be administered in the form of enema; thus employed, it has proved in many instances highly serviceable, stimulating the system, allaying the vomiting, and causing a degree of reaction which other remedies fail to produce. I would also strongly advise its internal exhibition, in the manner

* Brit. and For. Med. Rev., Oct. 1841.

† Clin. Lect., vol. ii. p. 313.

‡ Op. cit., vol. i. p. 378.

and doses advised in Hæmorrhage. In the stage of collapse, its external application should never be neglected.

2748. *In obstinate Constipation, particularly in that which accompanies disease of the Brain*, the Oil of Turpentine fl. oz. j.—fl. oz. ij., with Ol. Ricini fl. oz. j., is often very effectual. Its action is not simply that of a purgative, but also that of a derivative. Dr. Paris speaks highly of its efficacy.

2749. *In Chronic Jaundice*, connected with hepatic disease, and where there is a tendency to dropsy, the internal and external use of Turpentine is productive of good.

2750. *As a solvent of Biliary Concretions or Gall Stones*, M. Durande, in 1790, proposed a mixture of two parts of Sulphuric Ether and three parts of the Oil of Turpentine. It was advised in doses of about f℥ss., repeated twice or thrice daily. It has also been highly spoken of by Ritcher, Soemmering, and other continental physicians. Amongst British practitioners, the solvent power of this mixture is generally considered very doubtful; although, in some instances, it has been found useful in decreasing the frequency of the paroxysms attendant on the passage of these concretions, and also in allaying the pain when present. Dr. Copland* speaks favourably of this remedy; and it has been employed, with apparent success, by Dr. Martin-Solon,† who advises the above mixture in doses of f℥ij.

2751. *In the advanced stages of Acute Dysentery, and also in the nervous, typhoid, and malignant forms of this disease*, Dr. Copland‡ speaks highly of the value of Turpentine fomentations (*ante*) applied to the whole abdomen, and allowed to remain on as long as the patient will endure it. Its most usual effects are a most copious perspiration, with burning heat of the skin where it is applied; and, consequent on these, a total remission of the tormina and tenesmus. *In Chronic Diarrhœa*, the same applications are often of great service.

2752. *Against Worms, particularly A. Lumbricoides, and Tænia or Tape-Worm*, the Oil of Turpentine is very effectual. It appears to act specifically on the worms, as under its use they are generally expelled lifeless. Dr. Fenwick, of Durham, introduced it to notice in 1811, since which time it has been extensively employed. Dr. Elliotson advises to commence with f℥ss. of the oil, and gradually to increase the dose to f℥ij.—f℥iij., either alone or in Barley-water. It is best given in some cold vehicle, two or three hours after a meal; if taken on an empty stomach, it is apt to produce vomiting. The patient should remain quiet after taking it, the remedy being then less likely to disturb the stomach.

* Dict. Pract. Med., vol. i. p. 396. 1849.
† Gaz. des Hôpitaux, March 10, ‡ Op. cit., vol. x. p. 729.

Broths and mucilaginous drinks should be taken during its operation. Dr. Mason Good says that the dose for an infant is f℥ss.—f℥j. in a little milk, and f℥j. for a child of ten or eleven years old. To an adult, f℥ij. may be given. In the majority of cases, these doses may be given with perfect safety; but in some habits they create a good deal of constitutional irritation. It is in small doses alone, as f℥ss.—f℥j. to an adult, that it enters into the circulation, and proves an acrid irritant to the urinary organs, causing strangury, &c. When *Ascarides Vermiculares or Thread-Worms* are present in the rectum or lower intestines, Turpentine should be employed in the form of enema.

2753. *In Diseases of the Genito-urinary Organs*, the Oil of Turpentine exercises a powerful influence. *In Amenorrhœa*, Turpentine enemas have been employed by Dr. Elliotson* with great success. He relates three obstinate cases (one of them was of eighteen months' standing) in which the use of an enema, composed of f℥ss. of the oil and Oj. of Barley-water, repeated once or twice a day, was attended with a speedy return of the catamenia.

2754. *In Cancer of the Uterus*, Dr. Dewees † found the Spirit of Turpentine, in doses of gutt. xx., procure sleep, when it could not be obtained from Opium.

2755. *Gonorrhœa, Gleet, and Leucorrhœa*, when chronic and unattended by inflammatory symptoms, often improve under Turpentine, in small and repeated doses. Dr. Pereira‡ states that he has frequently employed it in the former affections as a substitute for Copaiba; and considers that it acts by setting up a new kind of irritation in the affected membrane, which supersedes the previously existing disease.

2756. *In Suppression of Urine*, Dr. Pereira§ found the Oil of Turpentine succeed in reproducing the urinary secretion, when other powerful diuretics had failed. It has also been advised *in Ulceration, and some other Chronic Affections of the Kidneys.*

2757. *When an Urinary Calculus is present in the Bladder, it often gives rise to intense agony.* This may be frequently relieved by an enema composed of fl. oz. ss. of the Oil of Turpentine, mixed with the white of an egg, and Oj. of Barley or Rice water. It should not, however, supersede the use of the hip-bath, Opium, and the internal administration of the fixed alkalies. (Dr. Cummin.‖)

* Lectures on Medicine, &c.
† On Diseases of Females, p. 274.
‡ Mat. Med., vol. ii.
§ Ibid.
‖ Cyc. Pract. Med., vol. i. p. 356.

2758. *In Cerebral Affections*, the Oil of Turpentine, under certain circumstances, proves valuable as a revulsive and derivative. (See *Fevers.*) *In Apoplexy*, connected with constitutional debility, and in all cases in which medicine cannot be given by mouth, the greatest benefit has sometimes followed the administration of an enema containing the Oil of Turpentine. If the patient can swallow, it may be given by mouth, with an equal quantity of Oleum Ricini.

2759. *Puerperal Mania*, when it assumes a chronic form, is best treated by stimulants. Of these, Dr. Prichard* says, the Oil of Turpentine, when not offensive to the stomach, is the best we can employ. Dose, f℥j. thrice daily, in Cinnamon-water. *In Ordinary Mania*, Turpentine, in full doses (fl. oz. ij.), is highly serviceable as a purgative and derivative.

2760. *Other Diseases. In Purpura Hæmorrhagica*, Dr. Neligan† employed the Oil of Turpentine with invariable benefit. He gave it in doses sufficient to purge freely, which object is more certainly attained by combining it with Castor Oil. To a child æt. six years he gave f℥ij., night and morning, for five successive days. It is also advised by Drs. Nichol, Magee, and T. Smith. Dr. Budd‡ also relates a case in which its efficacy was unequivocal. Dr. Pereira,§ however, states that he has seen it act injuriously, while blood-letting has seemed to relieve; but these cases must be regarded as exceptions to the general rule.

2761. *In Melæna*, the Oil of Turpentine has been successfully employed by Drs. Adair, Cheyne, Elliotson, Brooke, Copland, and others. Dr. Brooke's formula is as follows:—℞ Ol. Terebinth. gutt. xxv., Aq. Cinnam. f℥j., Syr. Aurant. f℥j., M. ft. haust. ter in die sumend.

2762. *Erysipelas.* Mr. Nunneley‖ observes, that "it is certain that in some instances where coma has been intense, the pulse sinking, the tongue dry and glazed, and the teeth imbued with sordes, after other remedies have been abandoned in despair, the administration of the Oil of Turpentine has apparently saved the patient." In extreme cases it should always be employed, and may be given in the manner advised in Typhus Fever (*ante*). Dr. Copland advises Turpentine fomentations (*ante*), to be locally applied.

2763. *In Enlargements and Injuries of the Joints*, in which a stimulating liniment is desirable, Sir B. Brodie¶ states that the following will be found very serviceable:—℞ Ol. Olivæ f℥iss., Acid. Sulph. Dil. f℥ss., M.; et adde Ol. Terebinth. f℥ss., M.

* Cyc. Pract. Med., vol. ii. p. 872.
† Dublin Med. Journ., vol. xxviii. p. 189.
‡ Lancet, 1851.
§ Mat. Med., vol. ii.
‖ On the Nature and Treatment of Erysipelas, p. 244.
¶ Clin. Lect., Med. Times, vol. xv. p. 337.

Care should be taken to mix the Olive Oil and Acid well together, before adding the Turpentine; for if the Acid and Turpentine be mixed together alone, combustion will ensue. The liniment should be applied twice a day with a piece of lint. *To Bruises, Sprains, &c.*, the ordinary Turpentine liniment (*ante*) is a very useful application.

2764. *In Acute Rheumatism*, the external application of Ol. Terebinth. has been found by M. Hervieux* to be very effectual in relieving the heat, pain, and swelling. He directs the oil to be poured over the affected parts, which are then to be enveloped in oiled silk. It is then to be kept on until it produces severe pain, when it may be removed. The pain soon afterwards subsides, and the patient is much relieved.

2765. *In Chronic Rheumatism*, the ordinary Turpentine liniment, diligently applied for fifteen or twenty minutes thrice daily, often proves highly useful. It has also been advised internally, but its efficacy appears doubtful.

2766. *When a wound is received in dissection*, Dr. Colles † advises the immediate application of caustic; but if this is objected to, he recommends plunging the finger, without delay, into a cup of Ol. Terebinth. The irritation, he thinks, may counteract the power of infection, or alter the mode of inflammation in the wound. (S. Cooper.) Dr. Bland,‡ of Sydney, reports very favourably of the Spirits of Turpentine (f℥ij.—f℥iv.), given internally or in enema, in cases of the *Bites of the Venomous Serpents of Australia*. The other usual measures—ligature, excision of the part, prevention of sleep, administration of stimulants—to be used also.

2767. *In Burns*, Turpentine has been much employed, on the recommendation of the late Dr. Kentish. In severe cases, he applied tepid Spirits of Turpentine over the whole of the injured parts, and immediately afterwards an ointment composed of Cerat. Resinæ ʒj. and Sp. Terebinth. f℥ss. spread on cloth or lint. The first dressing was allowed to remain on for twenty-four hours, when the parts were washed with Proof Spirit, or, in a few instances, with tepid Laudanum. Care was taken not to allow the surface to be exposed to the air, and the dressings were not changed more frequently than was absolutely necessary. The internal treatment consisted of Alcohol or Ether given immediately, in proportion to the degree of injury. The whole subsequent treatment was tonic and stimulant. This treatment is chiefly applicable to extensive and dangerous burns, where the vital powers are greatly depressed.

* Med. Times, vol. xvi. p. 354.
† Dub. Hosp. Reports, vol. iii. p. 222.
‡ Ranking's Abstract, xxxiii. p. 127, 1861.

2768. *Irregular Gout.* When much flatulent distension and severe colicky pains attend the internal seizure, or remain after other medicines are employed, equal parts of the Oil of Turpentine and of Castor Oil (f℥iv. to f℥vj. of each) may be given on the surface of an aromatic water, with or without a warm tincture; and an enema containing the same oil may be administered a few hours afterwards, to promote its operation. (Copland.)

2769. *In Diabetes*, Dr. Copland* advises the following liniment to be rubbed into the loins and epigastrium:—℞ Lin. Camphor. Co., Ol. Terebinth., Lin. Sapon. Co. āā f℥j., Pulv. Opii ℥j., Pulv. Capsici ℥ss., Ol. Limon. ♏xxx., M. ft. linimentum. He states that he has found this application extremely useful in the excessive discharge of albuminous urine, which is not unfrequently met with in young subjects; and that he has also employed it in the mellitic state of the urine, but it was difficult to say what share of the temporary benefit was owing to it.

2770. *Nervous and Hysterical Palpitations* are often immediately removed by the application of a hot flannel, sprinkled with the Spirit of Turpentine, over the region of the heart.

2771. *In Croup*, Dr. Copland† states, that in several cases he has directed, after a moderate depletion and after the operation of an emetic, a piece of folded flannel to be wrung out of hot water, freely sprinkled with the Oil of Turpentine, and applied around the neck and throat. This application has given instant relief; and he adds, that in his practice, it has proved more successful than any other remedy, local or constitutional. It may be employed at any period of the disease, and is highly beneficial in all its forms.

2772. *In Chronic Inflammation of the Heart*, Turpentine, in doses sufficient to excite some degree of urinary irritation, is advised by Dr. Joy.‡ It is particularly serviceable in those cases arising in connection with rheumatism.

2773. In cases of *extremely severe or neglected Bronchitis associated with Emphysema of the Lungs*, when the surface of the body becomes cold, and the pulse exceedingly small and feeble; and when, from the accumulation of fluid in the bronchial tubes, and the inability of the patient to expectorate, asphyxia is threatened, ordinary stimulants prove of little avail. In these cases Dr. Waters§ has been induced to try large doses of Turpentine (fl. drm. j.—fl. oz. ss.), on a plan originally suggested by Dr. Corrigan, of Dublin. The dose is repeated at intervals of two hours. He has recorded cases in which, under this treatment, the patient has rallied, the expectorating power has increased,

* Op. cit., vol. i. p. 515.
† Op. cit., vol. i. pp. 463, 468.
‡ Lib. of Med., vol. iii. p. 241.
§ On Emphysema of the Lungs, p. 107.

the dyspnœa has become less, and recovery has taken place from a condition which appeared hopeless. *In Chronic Bronchitis*, the following liniment, supposed to be an imitation of that used by St. John Long, is stated by Dr. Graves* to be highly serviceable :—℞ Ol. Terebinth. fʒiij., Acid. Acet. Fort. fʒss., Vitel. Ovi j., Aq. Rosmar. fʒiiss., Ol. Limon. fʒj., M. This should be well rubbed in over the chest, the nape of the neck, also over the epigastrium, and in the course of the cervico-spinal and pneumo-gastric nerves generally. In *Gangrene of the Lungs*, Skoda† successfully employed terebinthinate inhalations prepared by pouring the Essence of Turpentine on boiling water. The patient is directed to inhale the vapour for fifteen minutes every two hours.

2774. *Dropsical Affections.* *In Ascites*, not connected with renal disease, with great gastric irritability, nor with inflammatory action, the Oil of Turpentine is occasionally beneficial, when given in doses sufficient to act freely on the bowels and kidneys. *In Ovarian Dropsy*, it has been advised externally, but is of very doubtful efficacy. *In incipient Hydrocephalus*, Turpentine, in doses of ♏v.—x., with ♏xx.—xl. of Ol. Ricini, is advised by Dr. Copland,‡ who also speaks favourably of Terebinthinate enemas. Administered in the latter mode, it often proves highly serviceable.

2775. *In Deafness depending upon deficient secretion of Cerumen*, much benefit attends the following application :—℞ Ol. Amygdalæ fʒss., Ol. Terebinth. gutt. xl., M. Of this, a few drops may be dropped into the meatus, or introduced on a small piece of cotton.

2776. *For Chilblains*, a liniment composed of equal parts of Turpentine, Camphor, and Olive Oil, or of equal parts of Turpentine and Copaiba, is stated to prove very serviceable.

2777. *Porrigo Decalvans*, according to Dr. A. T. Thompson, seldom resists the application, twice or thrice daily, of a liniment composed of one part of the Spirit of Turpentine and two of Alcohol.

2778. *Ulcers of the Extremities.* The internal use of Turpentine appears, in these cases, to hasten the healing process. Mr. H. Hancock,§ of Charing Cross Hospital, relates a case illustrative of its efficacy. Water dressings were applied locally and the following mixture was given internally :—℞ Sp. Terebinth. fʒvj., Pulv. Acaciæ ʒvj., Aq. Menth. Pip. fʒvij., M. sumat. fʒj. ter in die.

* Clin. Lect., vol. ii. p. 21.
† Mod. Times and Gaz., April 15, 1853.
‡ Dict. Pract. Med., vol. i. p. 681.
§ Med. Times, July 6, 1850.

2779. Terminalia Chebula. Chebulic Myrobalon. *Nat. Ord.* Combretaceæ. *Hab.* Many parts of India.

Med. Prop. and Action. The fruit is very astringent, more so, according to Roxburgh, than galls. It is much used by the natives of India, in cases where astringents are indicated, particularly in *the aphthous ulceration of the mouth*, which is so common and dangerous amongst the Hindoos. It might advantageously be introduced into British practice as a substitute for Galls, Catechu, &c.

Terra Japonica. See Catechu.

Theriaca. See Saccharum.

2780. Thus Americanum. Common Frankincense. The concrete Turpentine obtained from the bark of Pinus Tæda, the Frankincense Pine, and Pinus Palustris, the Swamp Pine. Imported from the Southern States of North America.

Med. Prop. and Action. It is only used externally as a stimulant, with other ingredients, in the form of plaster. It is contained in the Emplastrum Picis. (See Pix Burgundica.)

Tiglii Oleum. See Crotonis Oleum.

2781. Tormentilla Officinalis (Potentilla Tormentilla). Common Tormentil. *Nat. Ord.* Rosaceæ. *Linn. Syst.* Icosandria Polygynia. *Hab.* Europe.

Med. Prop. and Action. The rhizome is astringent and tonic. It is best given in the form of decoction (oz. ij., Water Oiss., boiled to Oj.), in doses of fl. oz. iss. two or three times daily. It contains about 17 per cent. of Tannin, upon which its astringency depends.

Dose of the powdered rhizome, gr. xxx.—gr. lx.

2782. *Therapeutic Uses. In the advanced stages of Dysentery and Diarrhœa*, when inflammatory action has been subdued, the Decoction of Tormentilla (*ante*) may be given with evident advantage. *In the Diarrhœa of Phthisis*, it is said to be particularly useful.

2783. *In Ulceration and Sponginess of the Gums*, the decoction proves useful, as an astringent wash or gargle.

2784. *In Atonic Leucorrhœa*, the decoction forms a good vaginal injection. Its value is improved by the addition of Alum (3j. ad Oj.).

Toxicodendron. See Rhus Toxicodendron.

2785. Tragacantha. Tragacanth. Gum Tragacanth. Obtained from Astragalus Verus, and other species of Astragalus. *Nat. Ord.* Papilionaceæ. *Linn. Syst.* Diadelphia Decandria. *Source*, Asia Minor. It contains two distinct gummy principles, *Arabin* (53 per cent.) and *Bassorin*, sometimes called *Tragacanthine* (47 per cent.).

Med. Prop. and Action. Demulcent. The best form for administration is that of the Compound Tragacanth Powder.

Offic. Prep. 1. Mucilago Tragacanthæ (Tragacanth grs. c.; Boiling Distilled Water fl. oz. x. Macerate for twenty-four hours, then triturate, and express through calico). Dose, fl. oz. j.—fl. oz. iij.

2. Pulvis Tragacanthæ Compositus (Powdered Tragacanth oz. j.; Powdered Gum Arabic oz. j.; Starch oz. j.; Refined Sugar in powder oz. iij.). Dose, gr. xx.—gr. lx.

Dose of powdered Tragacanth, gr. xx.—gr. lx., in the form of emulsion.

Incompatibles. Acetate of Lead; Sulphate of Copper; Nitrate of Mercury; and Chloride of Tin.

2786. *Therapeutic Uses. In the Cough of ordinary Catarrh, in that of Phthisis, &c.*, the Pulv. Trag. Co. in emulsion with Syr. Papav. or T. Opii Camph., proves very useful in allaying the irritation. With Liq. Potassæ and T. Hyoscyam., it is very effectual in allaying *Ardor Urinæ in Gonorrhœa.* Combined with Ipecac. it also proves useful in *Dysentery.* Prof. Miller* advises the application of a thick semi-fluid aqueous solution of Gum Tragacanth to *granulating surfaces*, in order to protect them from the action of the air. It creates no irritation.

2787. Treeak Farook. A thick, soft, black electuary much used in India in many affections characterised by œdema. It is an imported article, and from a printed paper in Persian characters which accompanies each canister, it is professedly the Theriaca Andromachi of old writers, and is prepared at Venice, whence it is exported to the East.

2788. *Therapeutic Uses. In Beri-beri*, it has been extensively used in doses of gr. v.—xv. in the form of pill. Dr. Malcolmson† advises the following formula:— ℞ Pulv. Rhei ʒiiss., Treeak Farook ʒss., Conf. Aromat. ʒss., Mellis q. s., M. et divide in pil. xlviij. Sumat. ij.—iij. nocte maneque. If it purges, the quantity of Rhubarb must be diminished. It often fails in the acute stage, and has little influence on the paralytic symptoms. It is chiefly useful in chronic cases when œdema forms the principal feature. The sparing use of fluids favours its operation.

2789. *In Œdema of the Face*, unconnected with Beri-beri, occurring in the natives of India, it often proves signally beneficial when persevered in for two or three weeks. *In the Chronic Rheumatism of Sepoys*, which is often attended with œdema, it also proves very serviceable.

2790. Triticum Repens. Couch Grass. Dog's Grass. *Nat. Ord.* Gramineæ. *Linn. Syst.* Triandria Digynia. *Hab.* Europe.

Med. Prop. and Action. The underground stem or "root" is demulcent, diuretic, and alterative, and has been thought by some continental writers to partake of the properties of Sarsaparilla. It is given in infusion (oz. j. of the dried and cut stem to Boiling Water Oj.), to the extent of fl. oz xij.—fl. oz. xvj. daily,

* Brit. and For. Med.-Chir. Rev., Jan. 1851.

† On Beri-beri, p. 296.

in divided doses. The taste of this infusion is rather agreeable than otherwise, and it produces no nausea nor derangement of the stomach. Though long employed in a variety of affections requiring demulcents, by the people of Europe generally, especially in France, it was first brought prominently forward in England by Mr. H. Thompson* in 1861. To be effectual, he believes that the plant should be gathered in the spring, shortly before the leaves appear; he directs the stem to be then slowly dried, without artificial heat, and cut in short lengths for use. The infusion obtained from this is superior to that made from plants gathered indiscriminately at any time, and also to that obtained from herbalists.

2791. *Its Therapeutic Uses* are thus spoken of by Mr. Thompson:—"*In Vesical Irritability produced by Inflammation of the Prostate and Neck of the Bladder, in severe Gonorrhœa when the Inflammation extends backward, in the Pain and Spasm caused by Calculus, and by Aggravated Stricture of the Urethra, as well as in some cases of Obscure Disease of the Bladder*, the good effects of the Infusion have been very marked, and it has proved more efficacious than Buchu. In cases of *Prostatic Enlargement* in elderly patients, it has been of service, but less frequently so than in the conditions above named. It has also afforded great relief in *Renal Calculus*. In short, wherever micturition is very frequent or painful, depending on hyper-sensibility of any part of the urinary passages from acute or sub-acute inflammation, with the signs of its presence in the urine itself, the symptoms are most materially relieved and the urine becomes clearer under the use of this remedy. If improvement is produced at all, it is generally very soon after commencing the medicine; and if none can be observed in four or five days, it is not worth while continuing to employ it."

TURPETH, or TURBITH MINERAL. See HYDRARGYRI SUBSULPHAS.

2792. TUSSILAGO FARFARA. Coltsfoot. *Nat. Ord.* Compositæ. *Hab.* Various parts of Europe, Persia, and the Himalayas.

Med. Prop. and Therap. Uses. Demulcent and slightly tonic. The leaves and flowers in infusion (oz. j.—oz. ij., Water Oj.) have long been esteemed in *Catarrhal affections*, but they merit no reliance. They may be taken *ad libitum*.

2793. ULMUS CAMPESTRIS. Broad-leaved Elm. *Nat. Ord.* Ulmaceæ. *Linn. Syst.* Pentandria Digynia. *Hab.* Europe.

Med. Prop. and Action. The dried inner bark (*off.*) is tonic and diaphoretic. It abounds in mucilage, and has consequently been employed as a demulcent, and as such is said to be useful in affections of the genito-urinary mucous membrane. It occasionally acts as a diuretic. It is given in decoction (Ph. Lond.) (Bark ʒiiss., Water Oij., boiled to Oj.), in doses of fʒiij.—fʒiv. thrice daily.

2794. *Therapeutic Uses.* It is now rarely employed; but it appears to exercise considerable influence in *Lepra*, *Psoriasis*, *Herpes*, and some other diseases of the skin. Lettsom† succeeded

* Lancet, Oct. 12, 1861.

† Med. Memoirs, p. 152.

with it in *Ichthyosis;* but the experience of Willan* is unfavourable to its use. Collingwood† employed it successfully in *Diarrhœa.*

2795. Uva Ursi. The leaves of Arctostaphylos (Arbutus) Uva Ursi. Bearberry. Trailing Arbutus. *Nat. Ord.* Ericaceæ. *Linn. Syst.* Decandria Monogynia. *Hab.* Mountains of Europe, Asia, and North America.

Med. Prop. and Action. Astringent and diuretic. Their astringency is due to the presence of Tannic and Gallic Acids; of the former they contain about 36 per cent. As a diuretic they are highly spoken of by Sir B. Brodie in irritative states of the genito-urinary organs. When taken internally, they are absorbed into the system, and have been detected in the urine forty-five minutes after they have been swallowed. The decoction (Ph. Lond.) (Uva Ursi ℥j., Water Oiss. boiled to Oj.) is a good form for internal use.

Offic. Prep. Infusum Uvæ Ursi (Bearberry Leaves oz. ss.; Boiling Distilled Water fl. oz. x. Infuse for two hours and strain). Dose, fl. oz. j.—fl. oz. ij.

Dose of powdered leaves, gr. x.—gr. xx.

Incompatibles with the Decoction. The Salts of Iron and Lead; the Nitrate of Silver; Tartar Emetic; and Infusion of Yellow Cinchona.

2796. *Therapeutic Uses. In Leucorrhœa,* it occasionally proves useful. Dr. D. Davis‡ states that he has had several opportunities of observing that the powdered leaves, in doses of ʒss.—ʒj., twice or thrice daily, had the effect of greatly reducing the quantity of the discharge. *In Chronic Gonorrhœa and Gleet,* it may be given with advantage.

2797. *In irritable states of the Bladder, particularly when these are the consequence of Disease of the Kidneys,* Sir B. Brodie§ employed the Uva Ursi with much advantage. He considers that its influence is confined to these cases, and recommends it in larger doses than are generally given. Thus, from ʒj. to ʒij. of the extract may be given daily; or from fʒviij. to fʒxvj. of the following infusion:—℞ Fol. Uvæ Ursi ʒj., Aq. Ferv. fʒxviij.; macerate for two hours, boil down to fʒxvj., and strain. It requires to be persevered in for a considerable period before its good effects appear. If Lithic Acid be present in the urine, small doses of Potash or Liq. Potassæ may be added; and if the urine be highly alkaline, the mineral acids may be substituted. Dr. Prout‖ considers it more particularly useful when the affection of the bladder partakes more of an irritative than an inflammatory character.

2798. *In Cystirrhœa,* when the discharge from the bladder is copious, the decoction (*ante*) often proves highly beneficial.

* On Cutaneous Diseases, vol. i. p. 139.

† Edin. Med. Comment., vol. xvi. p. 58.

‡ Obstetric Medicine, 2nd Edit., p. 280.

§ On Diseases of the Urinary Organs, p. 140.

‖ On Stomach and Renal Diseases.

2799. VALERIANA OFFICINALIS. Wild Valerian. *Nat. Ord.* Valerianaceæ. *Linn. Syst.* Triandria Monogynia. *Hab.* Various parts of Europe. The dried root (Valerian) is officinal.

Med. Prop. and Action. Stimulant and anti-spasmodic. Active principles, a volatile oil, and an acid fatty matter, Valerianic Acid, which forms soluble salts with bases. It ranks in efficacy next to Assafœtida, and is said to be a useful adjunct to Cinchona in intermittents. Its unpleasant taste is effectually concealed by combining it with Mace or Cinnamon.

Offic. Prep. 1. Infusum Valerianæ (Valerian bruised grs. cxx. ; Boiling Distilled Water fl. oz x.). Dose, fl. oz. j.—fl. oz. ij.

2. Tinctura Valerianæ (Valerian bruised oz. iiss. ; Proof Spirit Oj. Prepared by maceration and percolation). Dose, ɱxxx.—fl. drs. ij.

3. Tinctura Valerianæ Ammoniata (Valerian bruised oz. iiss. ; Aromatic Spirit of Ammonia Oj.). Dose, ɱxxx.—fl. drs. iss.

Dose of Valerian Root in powder, gr. xv.—gr. xl.

2800. *Therapeutic Uses. In Epilepsy*, the value of Valerian has been variously estimated, being highly spoken of by Willis, Fothergill, Brisbane, Haller, and others; whilst Cullen, Heberden, Home, &c., regard it as a remedy of very inconsiderable power. Dr. Copland* thinks very favourably of its action, when it is appropriately exhibited, and depletions and evacuations have been premised in plethoric cases. The essential oil, and the compound tincture, are the best forms for internal use. It may also be exhibited in enemata. The same remarks apply to *Chorea*. The efficacy of this remedy is greatly increased by a combination with Zinc. (See ZINCI VALERIANAS.)

2801. *In Insanity*, Dr. Copland† states that the infusion and compound tincture of Valerian have proved, in some cases of *Mania*, *Monomania*, or *Melancholia*, of great service. When these affections are associated with hysterical symptoms, or when the patient entertains an idea of committing suicide, or has a disposition to indulge or to adopt any dangerous caprice, these preparations are often beneficial, particularly after appropriate evacuations, and in combination with the Acetate of Ammonia, or with alkaline carbonates, or with Digitalis, Hyoscyamus, &c. *In Delirium*, when the vital energies are greatly depressed, it often proves useful, combined with Camphor, &c.

2802. *In Typhoid Fevers*, Dr. Copland‡ states that he has given the infusion of Valerian with advantage, and that he has made it the vehicle for the Chlorate of Potash, Camphor, &c. It is indicated in such states of fever as require a gentle tonic, and stimulant of the nervous influence, particularly when the nervous symptoms are prominent, although the head be cool, and the pulse weak. In these circumstances, it may be conjoined

* Dict. Pract. Med., vol. i. p. 803.
† Ibid., vol. ii. p. 533.
‡ Ibid., vol. i. p. 1031.

with Camphor, tonics, &c. *In the Coma of Typhus*, the Essential Oil of Valerian was employed in 172 cases by Barrallier: the remedy was successful in 135, the effects in some instances being very remarkable. Dose, ♏j. in Syrup and Water every half-hour until ♏v.—viij. have been taken. (Murchison.)

2803. *In the advanced stages of Pneumonia*, the compound tincture has been found useful, combined with Camphor, &c., but it is inferior in efficacy to Musk. (See MOSCHUS, sect. 1843.)

2804. *In Neuralgia, particularly when associated with Hysteria*, the compound tincture, combined with Guaiacum, proves serviceable.

2805. *In Hysteria*, it proves highly serviceable, and may be advantageously given, both during the paroxysms and in the intervals. In some cases, its beneficial effects are immediate; in others, the remedy requires to be persevered in for a short period. *In Hysterical Headaches*, it is particularly serviceable. Dr. Conolly* advises the following formulæ:—℞ T. Valerian. Ammon., Sp. Ether. Sulph. Co. āā f℥ss, Mist. Camph. f℥iss., M.; or, ℞ T. Valerian. Am. f℥j., Acid. Sulph. Dil. ♏xv., Mist. Camph. f℥iss., M. ft. haust. bis terve in die sumend. Dr. Ashwell† speaks highly of the following:—℞ T. Valerian., Sp. Ether. Sulph. Co., Sp. Lavand. Co. āā f℥ss., T. Hyoscyam. ♏xx., Mist. Camph. f℥x., M. *In Hysterical Palpitations*, the use of Valerian is generally attended with immediate benefit. Either of the preceding formulæ may be given advantageously.

2806. *Muscæ Volitantes*, according to the experience of Mr. Ware, often disappear under the use of the annexed formula:—℞ T. Valerian. Am., T. Castor. āā f℥ij., Mist. Camph. f℥vj., M. cap. coch. amp. j.—ij. pro dos.

2807. VERATRIA. Veratrine. Sabadilline. An alkaloid, $C_{64}H_{52}N_2O_{16}$ (not quite pure), obtained from Sabadilla fruit (which see), the root-stock of Veratrum Album, and other plants.

Med. Prop. and Action. Acrid and sedative; but, from the violence of its action, it is rarely administered internally. Externally, it is used in the form of embrocation (gr. lx., Proof Spirit fl. oz ij.) or ointment. Veratria appears to act chiefly on the spinal cord. After it has been swallowed the patient experiences a dull, burning pain in the sacral region, various uneasy feelings through the abdomen, increased watery and slimy evacuations from the bowels, but seldom any diuresis. If its use be continued, it causes dryness, and a sense of burning in the mouth, intense thirst, nausea, vomiting, bloody stools, coldness of the limbs, trembling, syncope, delirium, and paralysis; the urine is generally scanty, thick, and of a deep red colour (Reichel). "When rubbed on the cuticle," observes Dr. Turnbull,§ "it produces a strong

* Cyc. Pract. Med., vol. ii. p. 583.
† Diseases of Women.
‡ Med.-Chir. Rev., No. lxvii. p. 232.
§ On the Med. Prop. of the Ranunculaceæ, p. 115.

sensation of tingling, or rather a feeling similar to that caused by receiving a succession of small electric sparks on an uncovered part of the body: this feeling is transitory." It may be rubbed on the skin for a short time without producing any redness of the parts. Dr. Reiche observed that its endermic use on the epigastrium excited nausea, a sense of tightness of the chest, electric-like dartings through the chest and abdomen, and painful twitchings of the limbs.

Offic. Prep. Unguentum Veratriæ (Veratria grs. viij.; Prepared Lard oz. j.; Olive Oil fl. drm. ss.).

Dose of Veratria, gr. $\frac{1}{12}$—gr. $\frac{1}{6}$, in the form of pill. It should be administered internally with great caution.

2808. *Therapeutic Uses. In Neuralgia, Tic Douloureux, and Hemicrania*, Dr. Turnbull* speaks highly of the external application of the Veratria ointment (*ante*), rubbed in diligently, until it causes a sense of heat and tingling. Occasionally, it affords great temporary relief, but it often fails entirely: it is inferior in every respect to Aconitine. M. Lafargue† advises ten or twelve punctures to be made with a lancet charged with a saturated solution of the alkaloid over the seat of pain. He states that it affords great benefit when thus applied. *In Chronic Gout and Rheumatism*, in the absence of inflammatory symptoms, Veratria ointment (ʒss. ad Adipis ʒj.) is advised by Dr. Turnbull, and appears occasionally to be of service. *In Gout* it has the recommendation of Sir Charles Scudamore.

2809. *In Pneumonia*, Veratria has proved very effectual in the hands of Prof. Vogt,‡ of Berne. He commences with five milligrammes (a milligramme is ·0154 of an English grain) every two or three hours, until it produce vomiting or diminution of the pulse. It is generally given in pills, but, if necessary, it may be given in solution. If the stomach is too irritable, the dose is reduced, and the Veratria is administered in an effervescing draught, or with a little opium: the action on the pulse is more slow in developing itself, but it appears at last. Under this treatment, the proportion of deaths in serious cases did not exceed 8 per cent.

2810. *In Paralysis*, the diligent use of Veratria externally is occasionally followed by great improvement; but it often fails to effect any beneficial change. It should be persisted in till it produces the tingling sensation above described. Dr. Forcke§ relates nine cases in which it was productive of the best effects. *In Incontinence of Urine in Adults*, Dr. Kennard,‖ of New York, found the following ointment, rubbed into the perineum thrice daily, an effectual application:—℞ Veratriæ, Morphiæ Sulph. āā gr. x., Axung. ʒj., M. *In Dysmenorrhœa*, M. Vannaire¶ found that ʒss. of an ointment containing $\frac{1}{150}$th

* Op. cit.
† Med.-Chir. Rev., No. lxxx.
‡ Bull. Gén. de Thérap., Jan. 1860.
§ Med.-Chir. Rev., No. lix. p. 229.
‖ Amer. Journ. of Med. Sciences, Jan. 1857.
¶ Braithwaite's Retrospect, vol. xlv. p. 278, 1862.

its weight of Veratria, rubbed over the hypogastric region twice daily, greatly relieves the pain.

2811. *Diseases of the Eye.* Mr. Howard* places much confidence in Veratria as an external application in many diseases of the eye; particularly in those in which the ophthalmic branch of the fifth pair of nerves is either primarily or secondarily affected. The solution which he generally employs is composed as follows:—℞ Veratriæ gr. x., Ether. Sulph. f℥ij., Sp. Vin. Rect. f℥j., M. This is brushed over the eyelids, eyebrows, and temples, till a slight burning sensation is produced in the parts; and it is repeated every morning. Great caution is necessary in its application, not to let any of it get on the conjunctiva, for such an accident will produce great pain and do no good. If the use of it be found to produce twitching of the muscles of the face, it should be discontinued. *In Scrofulous Ophthalmia*, applied as above, he states that it is one of the most valuable adjuncts to other remedies with which he is acquainted; that its immediate effects are to remove the morbid irritability, the intolerance of light, and the profuse lachrymation, and to aid the operation of other constitutional remedies. *In Amaurosis, depending upon Paralysis of the Retina; in Ptosis, from Paralysis of the Levator Palpebræ;* and in *Mydriasis*, he strongly advises the solution, as above, conjoined with the use of electricity. *In painful involuntary spasmodic Contraction of the Orbicularis Muscle*, he believes that brushing the lids once a day with the solution of Veratria constitutes the most efficacious local application.

2812. VERATRUM ALBUM. White Hellebore. *Nat. Ord.* Melanthaceæ. *Linn. Syst.* Polygamia Monœcia. *Hab.* The Mountains of Europe.

Med. Prop. and Action. The rhizome is purgative and emetic in doses of gr. j., gradually increased to gr. v. A single grain should never be exceeded at the commencement, as the remedy is of extremely uncertain strength. It is rarely employed internally. In large doses, it is a powerful acro-narcotic poison. When chewed, it causes great burning of the mouth and fauces; and, when powdered, creates great irritation of the lining membrane of the nostrils. The powder, applied to ulcers, occasions severe griping and purging. Active principle, *Veratria*, in combination with an acid, supposed to be *Veratric*. It deteriorates by keeping. Externally, it is applied in decoction (grs. dc., Water Oij., boiled to Oj.; when cool add Rectified Spirit fl. oz. iij.), or in the form of ointment (powdered root oz. ij., Lard oz. viij., Oil of Lemons ♏xx.). It is also occasionally used as an errhine, gr. j. or ij. being mixed with gr. x. —gr. xv. of some inert powder.

Prep. Vinum Veratri (Pharm. Lond.) (White Hellebore sliced ℥viij.; Sherry Wine Oij. Macerate for seven days and strain). Dose, ♏x.—♏xx.

Unguentum Sulphuris Compositum (Pharm. Lond.). (See SULPHUR.)

Dose of White Hellebore, gr. j., gradually increased to gr. v.

* Pathology of the Eye, p. 298, et var. loc.

2813. *Therapeutic Uses. In Mania and Melancholia*, White Hellebore was held in high esteem by the ancients; but it does not appear to deserve any confidence. Greding* employed the bark of the root in twenty-eight cases. Of this number, five were cured. In almost every instance, he found it produce vomiting and purging, the evacuated matter being of a highly bilious character; in some patients, it produced efflorescence of the skin; in others, herpetic eruptions. Pleuritic affections, with fevers, and spasms, and convulsions, occurred in others. *In Epilepsy*, particularly in that occurring in conjunction with Mania, it is advised by Greding.

2814. *In Gout and Rheumatism*, the Vinum Veratri has been employed as a substitute for Colchicum, but the uncertainty and occasional violence of its operation render it very inferior. It may be given in doses of ɱx., thrice daily, with a few drops of T. Opii. In reference to the substitution of Hellebore for Colchicum, Dr. Garrod† remarks, "he is sure that its action differs completely from that of Colchicum; it appears to produce a burning sensation of the œsophagus, parched mouth, and intense thirst, accompanied by great depression, without any alleviation of the gouty symptoms."

2815. *In Scabies, Impetigo, Tinea Capitis, and other Skin Diseases*, the decoction or the ointment (*ante*) has been employed on the Continent as a substitute for Sulphur ointment. It has also been extensively used *to destroy pediculi*, but there is considerable danger attending its use, as the active principles may become absorbed into the system, and produce poisonous effects.

2816. *In Amaurosis, and in some Chronic Cerebral Affections*, the powder, diluted as described above, has occasionally been employed as an errhine.

2817. Veratrum Viride. American Hellebore. Indian Poke. *Nat. Ord.* Melanthaceæ. *Linn. Syst.* Polygamia Monœcia. *Hab.* North America.

Med. Prop. and Action. The rhizome or root closely resembles Veratrum Album (q. v.) in its physiological effects, though it differs from it in being destitute of any purgative property. In small medicinal doses it is a powerful arterial sedative, reducing the force and frequency of the pulse in a remarkable degree. In addition to this depressing effect on the arterial system, and often independently of it, it occasions nausea, together with a feeling of prostration and a sense of weakness, or want of due command in certain muscles. When carried so far as to produce nausea and vomiting, its depressing effects on the circulation and nervous system are often very remarkable. The pulse falls from 75 or 80 down to 35 or 40, and at the same time becomes small, feeble, and occasionally almost imperceptible. The surface is pale and covered with a cold sweat; the patient at the same time experiencing a sense of

* Sammtl. Medic. Schriften, t. i. † Ess. Mat. Med. and Therap., p. 308.

chilliness, and sometimes of tingling and numbness. Headache, vertigo, dimness of vision, with dilated pupils, faintness, a feeling of stiffness of certain muscles and a want of command over them, are other symptoms evincing the sedative operation of the medicine: these are sometimes so great as to become alarming. This depressing operation is attended with stimulation of the secretory functions; the salivary, pulmonary, biliary, and urinary secretions are increased, it is said, by doses insufficient to occasion nausea or vomiting, whilst during the existence of the latter condition the same effect is produced on the function of the skin. Excessive action of any kind is easily controlled by opiates and alcoholic stimulants. With regard to the emesis produced by this agent, it is worthy of remark that its operation is very tardy, three quarters of an hour or more often elapsing before this effect is produced. Locally applied, it is a powerful irritant. Its powder snuffed up into the nostrils excites long-continued and violent sneezing, and applied to the skin in a moist state produces redness and burning. The presence of Veratria in this root was detected by Mr. J. G. Richardson.* Its sedative action relative to other agents of the same class, is fully examined by Dr. Cutter. Compared with venesection, he remarks, it has the advantage of not impairing the quality of the blood by a direct withdrawal of a portion of its solid and fluid constituents, whilst at the same time it equally lessens the force of the circulation, and exerts a sedative influence on the nervous system. Compared with Digitalis, it is sure, prompt, and not cumulative. Compared with Antimony, its effects are not as permanent, but it does not seem to directly change the character of the blood, and it does not purge. No instance of fatal poisoning by it has been recorded; no doubt the vomiting produced is a great safeguard (Braithwaite).

The *dose* of the powdered root is gr. j.—gr. ij. every third hour, and may be increased, if necessary, till it produce its physiological effects. In doses of gr. iv.— gr. vj., it generally acts as an emetic, but in this character it is very objectionable, from the prostration which accompanies its operation. The best form is the Tincture (ʒvj. of the fresh root to Oj. of diluted Alcohol is advised by Dr. Osgood, or ʒviij. of the dried root to Oj. of officinal Alcohol by Dr. Norwood). The dose of the latter, which is to be preferred, is gutt. vj. —viij. every three or four hours. On the development of any of its physiological effects, the dose should be diminished or the remedy discontinued, and if resumed it should be given in smaller doses. Its external application in ointments, decoction, &c., is inadvisable, from the liability of its absorption into the system.

2818. *Therapeutic Uses. In Inflammations*, observes Prof. G. B. Wood,† the medicine acts only as a sedative, and not probably by changing the character of the blood: it should not, therefore, be used to the exclusion of the lancet, and other measures calculated to meet the latter indication. But when the state of the system does not admit of depletion, it may sometimes, doubtless, be employed with advantage. This remark applies to the phlegmasiæ generally, excluding gastric inflammation.

2819. *In Pneumonia*, it has obtained considerable note from the writings of Drs. Osgood,‡ Norwood,§ Cutter,‖ and many other American physicians. The plan recommended by Dr. Norwood is to commence with gutt. viij. of the Tincture (*ante*),

* Amer. Journ. of Pharmacy, xxix. p. 204.

† Therapeutics, vol. ii. p. 155.

‡ Amer. Journ. of Med. Sciences, vol. xvi. p. 296.

§ Southern Med. Surg. Journ., June 1850.

‖ Amer. Journ. of Med. Sciences, Oct. 1853; and Med. Times and Gaz., June 28, 1862.

repeated every third hour, with the addition of a drop to each successive dose, until the pulse is sufficiently reduced, or nausea supervene; the dose to be subsequently regulated so as to sustain the depressed state of the circulation, with as little disturbance of the stomach as possible. Any excess of nausea may be controlled by a little Morphia. The inflammatory symptoms decline with the reduction of the pulse, and the patient in due time enters into a very favourable convalescence. Dr. C. Handfield Jones* derived great advantage from it in the treatment of *Croup*. He gave mij. of the Tincture every hour.

2820. *In Acute Rheumatism*, it is said to possess great powers, when employed with a due regard to the necessity of depletion. It may often be advantageously associated with opiates, and should be given in small doses so as to obtain its sedative without its nauseating effects, and the quantity can be increased as the stomach is found to tolerate it. It is especially recommended by Dr. Osgood. *In Chronic Rheumatism* it has also been extolled, but it is not so effectual as in the acute form. It is thought to be particularly adapted for the *Neuralgic forms of Rheumatism*. Benefit has been derived from it in various forms of *Neuralgia*, especially when it occurs in gouty and rheumatic patients. *In Gout*, according to Dr. Tully, it is sufficient to effect a cure in the majority of cases. He considers it better adapted for the gout of feeble constitutions than Colchicum, because less apt to weaken by exhausting operation on the bowels.

2821. *In Typhoid or Enteric Fever*, it is strongly recommended by Drs. Norwood, Branch, and others; but, as Stillé† justly remarks, it is difficult to believe that a disease eminently specific in character, and most dangerous when its type is most asthenic, can be profitably treated by a medicine which tends so directly to produce such depression of the pulse, and ultimately collapse of the whole system.

2822. The other diseases in which it is said to have been used with benefit are *Nervous Asthma*, *Dysentery*, *Puerperal Peritonitis*, *Aneurism*, *Palpitations of the Heart*, and *Jaundice*. Trustworthy evidence of its value in these affections, however, is still required.

2823. Vienna Powder and Paste. A powerful caustic, long celebrated by the French and German surgeons in the treatment *of Lupus and Cancerous Ulceration*. It is composed of equal parts of Quicklime and Potassa c. Calce. When it is to be used, a few drops of Spirit of Wine are added, to form a thin paste. A piece of

* Lancet, July 19, 1862. † Therapeutics, vol. ii. p. 349.

adhesive plaster, with a hole cut in it, the size of the intended eschar, should be placed over the diseased part. The paste should be left on from five to fifteen minutes, according to the depth of the eschar required. It creates violent constitutional irritation, and is rarely employed at the present day.

2824. VINUM. Wine. The fermented juice of the fruit of Vitis Vinifera. Although only one kind of Wine, Vinum Xericum, Sherry, or White Wine, is officinal, others, as Port, Claret, Madeira, Champagne, &c., are used as remedies in several forms of disease, particularly in acute inflammations and fevers, when typhoid symptoms develop themselves. Wine is a diffusible stimulant, increasing the force and frequency of the pulse, causing an increased heat of the surface, and excitement of the vascular system. In large quantities it proves intoxicating. Wine varies in strength according to the quantity of Alcohol which it contains, and apparently, also, in part, according to the quantity of Carbonic Acid which it evolves: thus Champagne, which abounds in the latter, is more intoxicating than Sherry or Madeira, which contains but a small portion. Wine is employed pharmaceutically as a solvent for many substances.

Therapeutic Uses. See STIMULANTS.

2825. VITIS VINIFERA. The Grape Vine. *Nat. Ord.* Vitaceæ. *Linn. Syst.* Pentandria Monogynia. Cultivated in most parts of the world.

Med. Prop. and Action. The dried fruit, commonly called Raisins (Uvæ), enter into the composition of several demulcent and diaphoretic formulæ. From the fresh fruit (grapes) is expressed a juice which under the process of fermentation yields Wine, Alcohol, and Acetic Acid. The lees of the Wine yield large quantities of the impure Bitartrate of Potash (Cream of Tartar). Fresh grapes are a useful and agreeable refrigerant in *Fevers*.

YEAST. See CEREVISIÆ FERMENTUM.

2826. ZINCI ACETAS. Acetate of Zinc. $ZnO, C_4H_3O_3 + 2\,HO$. Prepared by the action of Acetic Acid on Carbonate of Zinc.

Med. Prop. and Action. Astringent, chiefly used in collyria and in injections. In its medicinal properties it resembles the Sulphate. In doses of gr. j.—gr. ij., it is tonic and anti-spasmodic; gr. x.—gr. xx. prove emetic, but it is rarely given internally.

2827. *Therapeutic Uses. In Gonorrhœa, Gleet, and Leucorrhœa*, unattended by inflammatory action, a solution of the Acetate of

Zinc (gr. ij.—iv. ad Aq. fl. oz. j.) forms a useful injection. Sir Astley Cooper* regarded the following formula as one of the best which could be employed:—℞ Zinci Sulph. gr. vj., Liq. Plumb. Diacet. Dil. f℥iv., M. ft. injectio. In this formula, decomposition takes place, and the Acetate of Zinc results.

2828. *In the Ophthalmia of Children and Infants*, I have seen the best effects from the above formula of Sir A. Cooper, still further diluted, according to the severity of the case.

2829. *In Typhoid Fever*, Dr. Heer† speaks favourably of the Acetate of Zinc; he does not trust to it alone, but conjoins it with stimulants, anti-spasmodics, and other remedies, as indicated.

2830. ZINCI CARBONAS. Carbonate of Zinc. $(ZnO, CO_2 + HO) + 2 (ZnO, HO)$. Prepared by precipitating a solution of Sulphate of Zinc with Carbonate of Soda.

ZINCI CARBONAS IMPURA. Native or Impure Carbonate of Zinc. Calamina. Calamine. Carbonate of Zinc largely adulterated with Sulphate of Baryta and Oxide of Iron.

Med. Prop. and Action. Calamine was formerly used externally in the form of ointment, Cerat. Calaminæ (Ph. L.) (Prepared Calamine, Wax ää ℥viiss., Olive Oil Oj.), or as a dusting powder. It has, however, been superseded by the Carbonate of Zinc, which is preferable on account of its greater purity. The Carbonate in its medicinal properties closely resembles the Oxide. It may be used externally as a dusting powder mixed with starch, or as an ointment rubbed up with Ung. Simp. Internally it is not often prescribed, but its action is probably identical with that of the Oxide (Garrod).

Dose of Zinci Carbonas, gr. j.—gr. x., in pill or powder.

2831. *Therapeutic Uses. In Burns, Scalds, Excoriations, Chapped Hands and Lips, Bed Sores, &c.*, few applications produce more benefit than the Calamine Ointment (*ante*). It should be spread smoothly on lint, and applied two or three times daily. *Weak and Indolent Ulcers*, also, improve and heal under its use. As a means of *preventing Pitting in Small-pox*, Prof. Bennett‡ recommends, in preference to all other applications, the following plaster:—℞ Zinci Carb. ℥iij., Zinci Oxid. ℥j., Ol. Olivæ q. s., M. This plaster should be of a firm consistence. Dr. Gason,§ of Rome, effected this object effectually by dusting the whole surface thickly with powdered Calamine; it was found also to have a very soothing effect.

2832. ZINCI CHLORIDUM. Chloride of Zinc. ZnCl. Called also the Muriate, the Hydrochlorate, or Butter of Zinc. *Comp.* 1 Eq. Zinc = 32·5, + 1 Chlorine 35·5 = 68, Eq. Wt.

* Lancet, vol. iii. p. 199.
† Med. Zeitung, 1855.
‡ Edin. Monthly Journ., April 1854.
§ Med. Circular, Dec. 18, 1861.

Med. Prop. and Action. Powerful and penetrating escharotic. "Its local action as a caustic," observes Dr. Pereira,* "depends partly on its affinity for albumen and gelatine; so that when placed in contact with living parts, into whose composition these organic compounds enter, the Chloride, exercising its affinity, destroys the life of the parts, and, uniting with the albuminous and gelatinous matters present, forms an eschar." Internally, in small doses largely diluted, it is a nervine tonic; but it is rarely administered. Sir W. Burnett's Disinfecting and Antiseptic Fluid is a solution of the Chloride of Zinc. Sp. gr. 2·0. This fluid, taken internally, is a powerful corrosive poison. The Chloride requires to be kept in well-stoppered bottles, as it rapidly deliquesces on exposure to the air.

Dose, gr. ½—gr. j. or gr. ij., largely diluted.

2833. *Therapeutic Uses.* *In Cancer*, the topical application of the Chloride was proposed by Dr. Canquoin, in 1837, and was shortly afterwards employed in England by Mr. Ure † Great expectations were raised at the time, that an effectual remedy for Cancer had been discovered; it being asserted that its operation was not only that of an escharotic, but that it established a new action in the surrounding parts. It has, however, disappointed the anticipations of its warmest advocates. In some instances, it is productive of temporary benefit, but it does nothing towards the eradication of the cancerous diathesis. The constitutional irritation to which it gives rise is a great objection to its use. When it is to be applied, one part of the Chloride is to be mixed with three of Plaster of Paris or Gypsum, finely powdered. This is to be made into a paste with a little water, and then applied to the affected surface. The irritation which it causes lasts for a few hours; a greyish eschar forms, which separates in ten or twelve days. In applying this caustic, the surrounding parts should be well moistened with vinegar; and about a quarter of an hour after its application, the sore should be covered with a soft poultice. When Gypsum cannot be obtained, flour may be substituted; and in India the fine white clay of Bengal may be used. When the disease has progressed to any extent, and the constitution evidences a cancerous predisposition, the utility of this or any other caustic is very doubtful; but in the earliest stage of the affection, when the diseased part is of limited extent, and the constitution uncontaminated, it may be applied with a prospect of benefit.

2834. *In Lupus*, the Chloride has been employed by Cazenave,‡ and other French practitioners. Dr. Ranking§ states that, in this disease, he has found no caustic application nearly so beneficial as the Chloride of Zinc. He mentions a case in which he had tried every other means, for several months, without effect, but which yielded to the use of this substance. *In stubborn*

* Mat. Med., vol. i. p. 773.

† Lond. Med. Gaz., vol. xvii. p. 371, and vol. xviii. p. 371.

‡ Annal. des Malad. de la Peau, Oct. 1844.

§ App. to Trans. of Lugol on Scrofula, p. 218.

Ulcers, with callous, hard, everted edges, the Chloride has been found to establish a healthier action, and rapidly to effect a cure. (Mode of application, see *Cancer*.)

2835. *In the severer forms of Toothache*, when cauterants are advisable, the most efficacious is the Chloride of Zinc, diluted with ten parts of Plaster of Paris. A little roll of softened wax should be dipped into this powder, and inserted into the cavity of the tooth. (Druitt.*)

2836. *In Gonorrhœa*, Mr. Lloyd† speaks highly of the efficacy of injections of a solution of the Chloride (gr. j. ad Aq. fʒj.). Half a small syringeful of this should be very gently injected every six or eight hours. Saline aperients, warm fomentations, and strict antiphlogistic regimen, should form the remainder of the treatment. He relates five cases, recent and chronic, out of many, as illustrative of its efficacy. In some chronic cases, the strength of the injection was gradually increased to gr. iij. in Aq. fʒj.

2837. *Gonorrhœal Ophthalmia*, both in children and in adults, has been successfully treated by Mr. Lloyd,‡ by a collyrium containing the Chloride of Zinc (gr. j. ad Aq. fʒj.). Its use, he states, is attended with marked and almost immediate benefit.

2838. Zinci Iodidum. The Iodide of Zinc. Dr. Venables § advises its use in *Chronic Diseases of the Liver*, particularly when these occur in persons of weak, irritable, and leucophlegmatic habits. He found it less irritating than the Iodides of Iron or other metals. Dose, gr. j., thrice daily, gradually increased. *In enlarged Lymphatic Glands, and in some Scrofulous Affections*, it has been used externally, in the form of ointment (ʒj. to Lard ʒj.).

2839. Zinci Lactas. Lactate of Zinc. Prepared by dissolving Metallic Zinc in dilute Lactic Acid, and evaporating to crystallization.

Med. Prop. and Action. It was introduced as a remedy in *Epilepsy* by Dr. Herpin‖ in 1856. He regards it as equally efficacious with the Oxide, over which it possesses the advantages of being more easily taken, and less liable to disagree with the stomach. He commences with gr. ij. thrice daily, in the form of pill, and gradually increases the quantity till ten grains are taken daily. M. Herpin enters into many statistical data with reference to the results of treatment by this agent. In the successful cases its use was continued for periods varying from five to twelve months.

Dose, gr. ij.—gr. v.

2840. Zinci Oxidum. Oxide of Zinc. Flowers of Zinc. ZnO. *Comp.* 1 Eq. Zinc 32·5, + 1 Oxygen = 8 = 40·5, Eq. Wt.; or Zinc 85·25, Oxygen 19·75, in 100 parts.

* Surgeon's Vade Mecum, p. 386.
† Lancet, Dec. 1850.
‡ Op. cit.
§ Cyc. Pract. Med., vol. iv. p. 620.
‖ Bull. Gén. de Thérap., Nov. 1856.

Med. Prop. and Action. Tonic and anti-spasmodic. In large doses it causes vomiting, and sometimes purging; by gradually increasing the dose, however, very large quantities may be taken without producing any sensible effect. Externally applied, it is an astringent. It may be used in the form of ointment, in solution (oz. ss. to Water Oij.), or in fine powder.

Offic. Prep. Unguentum Zinci Oxidi (Oxide of Zinc in fine powder grs. lxxx. Simple Ointment oz. j. Prepared by adding the Oxide of Zinc to the melted ointment, and stirring until it solidifies).

Dose, gr. ij.—gr. v. or gr. x., in pill or powder.

Incompatibles. Acids; Acidulous Salts; and Alkalies.

2841. *Therapeutic Uses. In Spasmodic Asthma*, it was first employed by Dr. Withers, in 1787. He speaks highly of its efficacy, and relates several cases successfully treated by it. The dose recommended by him is from gr. v. to xx., twice or thrice daily. It is only admissible in purely spasmodic asthma; and though occasionally useful if persevered in during the intervals, it is inferior to many other metallic tonics.

2842. *Chorea.* The late Dr. Bedingfield* states that he treated forty cases of Chorea with the Oxide of Zinc, and in one only did it fail to effect a cure. He advises to commence with gr. v., which dose may be gradually increased, until an impression is made upon the disease. Dr. Crawford,† also, found it uniformly successful. He observes, that it is much more manageable than the Sulphate; and that he has increased the dose to gr. xxv., without producing any injurious effect. Dr. Copland advises the addition of Cupri Ammoniat. (gr. ij.) to each dose of the Oxide, stating that it prevents the remedy from irritating the stomach. *In Epilepsy*, its use was first warmly advocated by Dr. Herpin,‡ but he appears to have subsequently changed his opinion, substituting for it the Ammonio-Sulphate of Copper. Dr. Radcliffe § found no benefit from it whatever in nine cases treated on Dr. Herpin's plan.

2843. *In the Convulsions of Children*, the Oxide of Zinc is strongly recommended by M. Guersant.‖ One grain may be given at the commencement, and the dose gradually increased to gr. xx. daily. It is best given in powder, with a little sugar.

2844. *In Hooping-Cough*, M. Guersant recommends the Oxide, in doses of gr. j.—iij. (according to the age of the child), in combination with equal parts of the extract of Hemlock or Belladonna. Loeffer, also, speaks highly of its efficacy when used externally with oil, in the form of liniment, as well as internally. Hochsteker¶ regards it as a specific.

2845. *In the Intermittent Fevers* which occur in Barbadoes,

* Compendium of Med. Practice, p. 51.
† Cyc. Pract. Med., vol. i. p. 411.
‡ Du Prognost., &c., d'Epilepsie, Paris, 1852.
§ On Epilepsy, Lond. 1858.
‖ Med. Times, vol. xvi. p. 575.
¶ Ann. de Thérap., 1860, p. 252.

Dr. Hendy found the Oxide, in doses of gr. ij.—v., effectual, even when Bark and other remedies had previously failed. Sir Gilbert Blane* bears similar testimony to its value.

2846. *Chronic Dysentery*, which resists all other remedies, occasionally yields to a persevering use of the Oxide, in doses of gr. iij.—v., thrice daily.

2847. *In Chronic Alcoholic Intoxication*, the Oxide, according to Dr. Marcet,† is the proper remedy for the nervous symptoms which so often exist. It is necessary for the patient to abandon drinking his usual stimulants, and to take Zinci Oxid. gr. ij. twice daily, in the form of powder, an hour after each meal. The dose may be increased in the ratio of gr. ij. every third day, until the patient takes gr. vj.—viij. twice daily. This course, persevered in for periods varying from three to six weeks, proved, in Dr. Marcet's cases, signally beneficial. It is well worthy of a further trial.

2848. *In purulent Ophthalmia, Scrofulous Ophthalmia, and in Ophthalmia Tarsi*, the following formula, long known as "the Ophthalmic Ointment of Janin," has been found serviceable:—℞ Zinci Oxid. ʒj., Bole Armen. ʒj., Calomel ʒj., Adipis ʒiv., M. It should be applied to the lids with the finger or a camel's-hair brush. The simple ointment (*ante*) is also an excellent application.

2849. *In Gonorrhœa and Leucorrhœa*, Somme ‡ successfully employed an injection of the Oxide (ʒss. ad Aq. Oij.).

2850. *To Ulcers on the Nipples*, Dr. Bochm,§ of Berlin, advises a powder, composed of 1 part of the Oxide and 2 of powdered Gum Arabic, to be sprinkled on the sores. It forms a thin crust over the ulcerated surface, which, being thus protected, speedily heals. *To Bed Sores and superficial Excoriations, &c.*, the Ung. Zinci (*ante*) is a good and efficient application.

2851. *In Scrofulous Coryza and Ozœna*, the local application of the ointment is very serviceable. Dr. Willshire‖ directs that it should be introduced into the nasal cavity, by means of a camel's-hair brush, every night and morning. The patient should be put, at the same time, under a course of Iodine, Quinine, or Iron, and the bowels regulated by Rhubarb and Soda.

2852. *In Skin Diseases, particularly in Eczema, Ecthyma, Porrigo Larvalis, and Porrigo Furfurans*, Martin-Solon ¶ found an ointment, composed of gr. xv.—xlv. of the Oxide and gr. xxx. of Lard, of signal benefit. *In Eczema*, Dr. T. McCall Anderson** recommends a mixture of powdered Oxide of Zinc (ʒss.) and

* Trans. of Med.-Chir. Soc., vol. iii.
† Lancet, April 2, 1859.
‡ Archiv. Gén. de Méd., vol. i. p. 846.
§ Med.-Chir. Rev., No. lviii.
‖ Clin. Lect., Med. Times, vol. xviii. p. 151.
¶ British and Foreign Med. Rev., vol. xxvi. p. 541.
** Med. Times and Gaz., July 11, 1863.

Glycerine (fʒij.) as a very soothing application. Its efficacy is increased by the addition of a little Camphor. *In Chronic Impetigo*, Dr. Watson* speaks highly of the Oxide of Zinc. He advises its being dusted over the affected surface, or applied in the form of lotion (gr. xv. ad Aq. fʒj.). This he also found particularly useful in *Crusta Lactea*. He objects to the use of ointments. *In Lichen Agrius, Erythema, and Sycosis*, it is advised by E. Wilson.†

2853. ZINCI SULPHAS. Sulphate of Zinc. $ZnO, SO_3 + 7\ HO$. White Vitriol. White Copperas, &c. *Comp.* Oxide of Zinc 28·22, Sulphuric Acid 27·88, Water 43·90, in 100 parts; or 1 Eq. Oxide of Zinc = 40·5, + 1 Sulphuric Acid = 40, + 7 Water + 63 = 143·5, Eq. Wt.

Med. Prop. and Action. Tonic, astringent, and anti-spasmodic, in doses of gr. j., gradually increased. In doses of gr. x.—gr. xx., it proves emetic, acting promptly and effectually, and leaving little subsequent depression; it is consequently much used in cases of poisoning by narcotic substances. Besides its tonic and astringent properties, which are evident only when persevered in in small and repeated doses, it appears to act powerfully as a nervine, and proves highly serviceable in spasmodic affections having their origin in derangement of the nerves or nervous centres (see *Chorea*). In excessive doses it is an irritant poison. Externally, it is an astringent and stimulant; it is used in the form of collyrium, wash, or lotion (gr. j.—x. or more, ad Aq. fl. oz. j.). If its internal exhibition be continued for too long a period, Dr. Graves observes, that it occasions marasmus. *As a caustic*, its claims are advocated by Prof. Simpson.‡ In a dried or anhydrous state and finely levigated, he characterises it as a powerful and very manageable caustic when applied to an open or diseased surface: it does not act where the epithelium is entire. He likewise uses it in the form of paste (Dried powder ʒj., Glycerine f ʒj.), or ointment (ʒj.—Axung. ʒij.). Its advantages over other caustics are said to be—1. Its powerful escharotic action. 2. The rapidity of its action. 3. Its great simplicity and manageableness. 4. Its facility of application. 5. Its non-tendency to deliquesce, or spread. 6. Its perfect safety; and 7. Its efficacy. Where the skin is entire, he recommends a caustic made by saturating strong Sulphuric Acid with dried and powdered Sulphate of Zinc.§

Dose: as a tonic, gr. j., gradually increased to gr. v., or more; as an emetic, gr. x.—gr. xxx.

Incompatibles. Alkalies and their Carbonates; Earths, Sulphurets; Acetate of Lead; Nitrate of Silver; Chloride of Barium; and vegetable astringent infusions.

2854. *Therapeutic Uses.* *In Chorea*, the Sulphate of Zinc proves highly effectual. Dr. Babington‖ states that he has employed it in numerous cases, and that he has found it uniformly efficacious. He commences with small doses, but he found that the good effects are seldom perceptible until gr. xij. or xiv. are taken thrice daily. By gradually increasing the quantity, a

* Lectures, vol. ii. p. 857.
† Diseases of the Skin, Ed. 1851, p. 265.
‡ Med. Times and Gaz., Jan. 17, 1857.
§ Ibid., Feb. 5, 1857.
‖ Guy's Hosp. Reports, Oct. 1841, and Oct. 1845.

single grain at a time, even larger doses than these may generally be employed, without exciting nausea, and with the best effects. "I have," he adds, "known ʒss. doses, thrice a day, taken for several weeks in succession." It cannot, however, be borne by all stomachs; when sickness occurs, it should be discontinued. In thirteen cases thus treated at Guy's Hospital, twelve recovered. Dr. Hughes* employed it in sixty-three cases; of these, forty-five were cured, two relieved, and sixteen received no benefit. The dose employed was small at first, and gradually increased until gr. xxxvj. were taken, thrice daily. It caused no sickness. Other cases have been successfully treated by Drs. Addison and Barlow.† Dr. Golding Bird believes that Zinc has a peculiar and specific influence on the nervous matter. The trials by Dr. Stone‡ do not tend to confirm the high character given it by others.

2855. *In Epilepsy*, it has also been found successful,§ although not so uniformly as in Chorea. It is a remedy of long-standing repute, but is generally inferior to the Valerianate. It should be commenced in small doses, gradually increased in the manner advised in the last section.

2856. *In Hysteria* depending upon debility, the Sulphate of Zinc will be found to agree with many females better than the preparations of Iron, causing less irritation. One grain, combined with the Extract of Gentian, may be given twice or thrice daily.

2857. *In Angina Pectoris*, the salts of Zinc, particularly the Sulphate, have sometimes proved successful when persevered in during the intermissions. A case illustrative of its good effects is related by Dr. Perkins.‖ *In Spasmodic Asthma*, it has also appeared, when its use is continued, to diminish the frequency and force of the attacks. Dr. Copland¶ states that he has derived great benefit from it in *Humoral Asthma* and *in Hooping-Cough*. In the last-named disease, Dr. Fuller** obtained the best results from a combination of the Sulphate and Belladonna. To a child æt. 3 he prescribes gr. $\frac{1}{6}$th of Ext. Belladon. and gr. $\frac{1}{2}$ of Zinci Sulph., four times daily. Above that age, $\frac{1}{4}$ gr. of Belladonna and gr. j. of the Sulphate. Mr. Garraway also adopted the same treatment with great success in numerous cases of Hooping-Cough.††

2858. *In Intermittent Fevers*, the Sulphate of Zinc has occasionally been used with success. Dr. Joseph Brown‡‡ advises it

* Guy's Hosp. Reports, Oct. 1846.
† Lancet, Jan. 11, 1850.
‡ Med. Times, Sept. 17, 1859.
§ Dr. Babington, op. cit.
‖ Memoirs of Med. Society of London, vol. iii. p. 580.
¶ Dict. Pract. Med., vol. i. p. 152.
** Lancet, July 28, 1860.
†† Ibid., Oct. 17, 1863.
‡‡ Cyc. Pract. Med., vol. ii. p. 228.

to be combined with some ginger and conserve, each pill to contain gr. iij. of the Sulphate. Of these, two may be given thrice daily, during the intermissions; the number to be gradually increased as the stomach will bear it. It is advisable to avoid drinking immediately after the medicine has been taken, as it is apt to induce vomiting. Dr. Brown ranks Zinc next in value to Arsenic as an anti-periodic. Sir J. M'Grigor gave it to the soldiers in the Peninsular War, to the extent of ʒss. daily, with success. *In Typhoid Fever*, Dr. Heer* speaks undoubtingly of the beneficial action of the Sulphate, especially in allaying the nervous agitation:—℞ Zinci Sulph. gr. viiss., Aq. fʒviij., M. Dose, a tablespoonful every second hour.

2859. *In Menorrhagia*, Dr. Locock† considers that, in the atonic forms, the Sulphate of Zinc is more easily managed than Steel medicines, and that in many instances it proves more useful. Dose, gr. j.—ij., in the form of pill, thrice daily.

2860. *In Flatulence, flatulent Affections of the Bowels, especially of the Colon, and in Constipation*, Dr. Strong‡ ably advocates the use of the Sulphate of Zinc, thus combined:—℞ Zinci Sulph. gr. xviij., Pulv. Opii gr. iij., Mucilag. q. s. ft. pil. vj. Of these, one is to be taken four or five times a day, immediately after a meal. When the stomach can dispense with the Opium, he substitutes Ext. Gent. or Pulv. Rhei. After gr. xv.—xx. have been taken, vomiting generally occurs: this Dr. Strong regards as favourable, as showing that the colon has resumed its healthy calibre (?). He adds, that he has persevered in this treatment for a considerable period, not only without any ill effect, but with decided benefit.

2861. *In Chronic Dysentery*, it has proved successful in the practice of Dr. Impey.§ In these cases it is best combined with Ipecac. and Opium. It is inferior in efficacy to the Nitrate of Silver. *In Chronic Diarrhœa*, it proves occasionally useful.

2862. *In Cynanche Tonsillaris*, when the abscess is so situated that it cannot be opened by the lancet, it has been proposed to administer an emetic; under the exertion caused by vomiting, the abscess will often burst, and discharge itself. For this purpose, no emetic is better than the Sulphate of Zinc (gr. xx.). An emetic at the very outset of the disease often removes the symptoms altogether.

2863. *In Gangrene of the Mouth in Children*, the Sulphate of Zinc (gr. x.), well incorporated in honey (oz. ss.), is a very useful topical application.

2864. *In Ophthalmia Infantum*, a collyrium composed of Zinci

* Med. Zeitung, 1855.
† Cyc. Pract. Med., vol. iii. p. 109.
‡ Edin. Med. Surg. Journ., No. cliii. p. 403.
§ Lond. Med. Phys. Journ., vol. ix.

Sulph. gr. j. ad Aq. fl. oz. j.—fl. oz. ij., is very serviceable. In the Ophthalmia of adults, it may be employed stronger (gr. j.—iv. ad Aq. fl. oz. j.). The addition of Liq. Plumb. Diacet. improves its efficacy.

2865. *In Coryza*, Mr. Pretty* advises the nostrils to be injected with a solution of the Sulphate of Zinc (gr. iij. ad Aq. f℥j.), once or twice daily. He states that he has often used it with the effect of cutting short the attack.

2866. *In Gonorrhœa*, in the third stage, a very useful injection is a solution of the Sulphate (gr. x. ad Aq. fl. oz. viij.); Liq. Plumb. Diacet. may be advantageously added. (See ZINCI ACET.). Prof. Sigmund† regards it as more effectual than any other remedy. *In Leucorrhœa and Gleet*, the same injection may also be employed with advantage.

2867. *In Hydrocele*, a solution of the Sulphate (℥j. ad Aq. Oj.) was the injection generally used by Sir Astley Cooper, after the evacuation of the fluid. It has, in a great measure, been superseded by solutions of Iodine (which see).

2868. *When Ulcers are attended with profuse discharge, or with loose, flabby granulations*, a solution of the Sulphate of Zinc (gr. j.—v. ad Aq. fl. oz. j.) forms a useful stimulant application.

2869. *In some Chronic Skin Diseases*, a solution is occasionally employed as a stimulating application. *In Acne Punctata vel Follicularis*, the following mixture, recommended by Dr. A. T. Thompson,‡ forms a useful adjunct to other treatment:—℞ Zinci Sulph. gr. xxiv., Liq. Potassæ f℥iij., M. Dose, gutt. xxx. in water, twice daily. *In Ringworm*, Mr. E. Wilson§ advises a Sulphate of Zinc Ointment (℥j. ad Cerati ℥j.); and a similar ointment he found useful in *Ichthyosis*. *In Syphilitic Eruptions*, baths containing ℥ij. of the Sulphate are well spoken of by Dr. Fricke.‖

2870. ZINCI VALERIANAS. Valerianate of Zinc. $ZnO, C_{10}H_9O_3$. Prepared by decomposing Valerianate of Soda with Sulphate of Zinc.

Med. Prop. and Action. Nervine tonic and anti-spasmodic. It is said also to act as an anthelmintic. It is best given in the form of pill with Conf. Rosæ, or suspended in a little mucilage.

Dose, gr. ½ increased to gr. iij., twice or thrice daily.

2871. *Therapeutic Uses. In Epilepsy*, the Valerianate is found of superior efficacy to all the other salts of Zinc. It should be commenced in small doses (gr. j.), and gradually increased as the stomach is able to bear it. Dr. Baretti¶ relates four long-

* Med. Gaz., July 13, 1849.
† Med. Times and Gaz., Nov. 6, 1858.
‡ Cyc. Pract. Med., vol. i.
§ Diseases of the Skin, pp. 384, 448.
‖ Graves' Clin. Lect., vol. ii. p. 427.
¶ Bull. del Scienz. Med., Feb. 1844.

standing cases, which were successfully treated by it; and other instances in which it has proved effectual are recorded.

2872. *In Chorea*, it has also been employed; but it does not appear to be so effectual as the Sulphate. Dr. Danet* has recorded a severe case of *Hiccough* of fifteen days' duration cured by the Valerianate (gr. ⅛th), with a small portion of Ext. Belladonnæ. *Hysterical Cough*, connected with arrest of the menstrual function, has been successfully treated by Prof. G. Harley† with Valerianate of Zinc and the cold douche.

2873. *In Neuralgia*, the Valerianate occasionally affords great and permanent relief. M. Devay‡ relates several instances in which it proved highly serviceable; and from which it appears that its curative powers are confined to those cases in which the disease is purely nervous, and to those neuralgic affections which accompany uterine derangement.

2874. ZINGIBER OFFICINALE. Officinal Ginger. *Nat. Ord.* Zingiberaceæ. *Linn. Syst.* Monandria Monogynia. *Hab.* Asia, West Indies, and Tropical America, &c.

Med. Prop. and Action. The rhizome or root (*off.*) is stimulant and carminative. If the powdered root be snuffed up the nostrils, it causes sneezing and violent irritation; if chewed, it increases the flow of saliva. When taken into the stomach, it causes a sensation of warmth, and excites a general stimulating action in the system. It is said to act as a stimulant of the genital organs, and of the cerebral functions in particular. Active principles, an acrid, volatile oil, and a soft, acrid resin. It is a useful adjunct to strong purgatives, the violence of which it moderates. The tincture is a good form for internal use. Externally, it is employed as a stimulant and rubefacient, the powdered dry root being made into a plaster with hot water.

Offic. Prep. 1. Tinctura Zingiberis (Bruised Ginger oz. iiss.; Rectified Spirit Oj. Prepared by maceration and percolation). Dose, ℥x.—℥xl.

2. Syrupus Zingiberis (Tincture of Ginger fl. oz. j.; Syrup fl. oz. vij.). Dose, ℥xxx. upwards.

Dose of powdered Ginger, gr. x.—gr. xx.

2875. *Therapeutic Uses. Short-sightedness.* Dr. Turnbull§ having observed that in short-sighted persons the iris was generally much dilated, when looking at distant objects, considered that this might be remedied by agents which would cause contraction of the iris, thus increasing the length of vision, by permitting the rays of light to enter in a straight line. For this purpose he employed a concentrated tincture of Ginger (one part of Ginger and two of Proof Spirit), which was rubbed over the whole forehead, with a view of acting on the branches of the fifth pair of nerves. "The success of this application," Dr. Turnbull observes, "was remarkable. In many cases it had the effect of doubling the length of vision." In some persons in whom the iris was not much dilated, but very torpid, he applied a tincture of Pepper of the same strength as the tincture of

* Gaz. Hebdom., Oct. 10, 1862.
† Med. Times and Gaz., Aug. 1, 1863.
‡ Gaz. Méd. de Paris, June 29, 1844.
§ Med. Gaz., Nov. 15, 1851.

Ginger. This was used until the iris had attained a greater power of contraction and dilatation, after which the tincture of Ginger was again applied. "This treatment," he adds, "has been attended with the most signal success; and persons who were extremely short-sighted, have very soon become enabled to lay aside permanently their concave glasses." He strongly advises the adoption of this treatment.

2876. *In Flatulence, Colic, Spasmodic Affections, and in Gout in the Stomach,* particularly when these occur in old or debilitated subjects, the tincture (*ante*), or an aqueous infusion of Ginger, with the addition of a small portion of brandy or wine, may often be administered with evident benefit. A Ginger plaster (*ante*) placed over the epigastrium, often relieves the pain in a remarkable manner.

2877. *In Headache,* Dr. Pereira* states that he has often known a Ginger plaster, applied to the forehead, afford much relief. *Toothache* is sometimes relieved by the same application to the face, and also by chewing a piece at the same time, so as to act on the salivary glands.

2878. *Relaxation of the Uvula and Tonsils, Paralysis of the Tongue and Fauces, &c.* These states are often much improved by the local stimulus of Ginger, chewed so as to produce a copious flow of saliva.

2879. *In Chronic Rheumatism,* the infusion of Ginger (gr. cxx. —gr. ccxl. ad Aq. Ferv. fl. oz. vj.), commonly called "Ginger Tea," is a popular domestic remedy. Dr. Graves† states that he has certainly seen benefit from its use.

* Mat. Med., vol. ii. † Clin. Lect., vol. i. p. 494.

MANUAL

OF

PRACTICAL THERAPEUTICS.

PART SECOND.

MEDICINAL AGENTS AND CLASSES OF MEDICINES.

2880. Acids. Acida: may be conveniently divided as therapeutic agents into two classes—Mineral and Vegetable

2881. *Mineral Acids.* The strong Mineral Acids, including Nitric, Sulphuric, and Hydrochloric, are powerful escharotics, destroying the tissues with which they come in contact, and when swallowed, they act as corrosive poisons. When properly diluted, they may be given internally with safety and advantage, acting in the characters of refrigerants, antalkalines, astringents, and tonics. What their precise action on the animal economy is appears uncertain; their first operation when swallowed is evidently to correct any excess of alkalescence which may be present in the stomach, and probably in the case of Hydrochloric Acid, to assist the digestive process, as it is well known that healthy gastric juice contains a portion of this acid. That they combine with the bases in the stomach, and are then absorbed into the system, is most probable, as they have been detected in the form of salts in the blood and in the urine. When Sulphuric Acid is given to women who are suckling, it causes griping in the child, although the milk is not coagulated by its presence. Of late years it has been much given as an astringent in some forms of diarrhœa. If continued for a long period, it produces derangement of the digestive functions, and a cachectic state of the body. If the Nitric and Hydrochloric

Acids, either singly or in combination with each other, be continued in the same manner, their ill effects are not so immediately evident; indeed, they appear to act as alteratives, particularly on the liver, the biliary secretion becoming improved and the digestive organs strengthened, at the same time that they cause a considerable amount of salivation. The Nitric and Nitro-Hydrochloric Acids also are especially valuable as tonics and alteratives in Syphilitic Cachexia. If, however, they are continued for too long a period, they produce the same cachectic state of the system as the Sulphuric Acid described above. When the mineral acids are added to freshly-drawn blood, they have been shown by Mr. Stevens and other physiologists to render the circulating fluid thick, black, and tarry, and to produce certain changes on the blood-corpuscles; but it is not probable that the same changes take place in the blood when they are introduced into the stomach; for, as previously observed, it appears certain that the acids combine with the bases in that viscus, before being absorbed into the system; but the whole subject requires further investigation. The dilute mineral acids have been administered as lithontriptics; but when given by mouth for this purpose, they are less certain in their operation than the vegetable acids. As a direct solvent of calculus, Nitric Acid, largely diluted, has been injected into the bladder. As refrigerants, the mineral acids are objectionable on account of their injurious action on the teeth; and this is not removed even when the acid is largely diluted.

2882. *Vegetable Acids*, including Citric, Tartaric, and Acetic Acids, when given internally, and properly diluted, closely resemble in their action and properties, the dilute mineral acids, as mentioned in the last section. Their primary action is that of antalkalines, although in this respect they are less permanent in their effects than the mineral acids. As refrigerants in fever, &c., they are in some respects preferable to the mineral acids, being more agreeable to the palate, less injurious to the teeth, and less liable to cause digestive derangement. As an antiseptic in Scurvy, Citric Acid is peculiarly valuable. As a means of rendering alkaline urine acid, Dr. Bence Jones* states that this may easily be effected by any vegetable acid, as Tartaric, Citric, or Acetic; and they have this advantage over the mineral acids, that they are less liable to cause the deposition of Uric Acid in the urine. More recently, Dr. Owen Rees† has pointed out that the best way of rendering acid urine alkaline, is to exhibit the salts of vegetable acids, as the Citrate of Soda or Potassa. "The acids are decomposed," he says, "in the organism, and appear in the urine in the form of a carbonate." When Acetic Acid is taken in large and often-

* On Gravel, Calculus, and Gout, p. 86.

† Med. Gaz., July 4, 1851.

repeated doses, it causes great digestive derangement, a depressed arterial action, wasting of the body, &c.

2883. *In Typhus Fever*, the Mineral Acids have been recommended in all countries, from the days of Forestus, Sydenham, &c. The theory of their action is obscure; but, as Dr. Murchison observes, their beneficial effects are undoubted. Dr. Murchison* adds, that during the last few years he has used these acids in hundreds of cases, and he believes them superior to any other method of treatment, though far from ascribing to them the wonderful effects attributed to them by some writers. He states that he usually commences with the Hydrochloric (mxx.) and Nitric Acids (mx.) every three hours, each dose being diluted with the patient's drink. In the advanced stages of severe cases, when the "typhoid state" is well marked, he prefers dilute Sulphuric Acid (mxv.—xx.) every three hours, with Ether and small doses of Quinine. (See QUINIÆ SULPHAS.) He states that he has often observed marked improvement follow the commencement of the acid treatment, at whatever stage of the fever it was prescribed, and although no wine or brandy was given with it. *In Typhoid* (*Enteric*) *Fever*, Dr. Murchison† considers that no remedies are superior to the Mineral Acids, and that they are often of real service, though their powers have been over-rated. Here he prefers the Hydrochloric and Sulphuric Acids: mxv.—xxx. of the Dilute Acid every three or four hours. With each dose he combines about half a grain of Quinine, believing it to be of great service, especially when the disease has anything of a remittent character.

2884. ACUPUNCTURE. The introduction of a needle into the body, with a view to the relief or cure of disease. It has been for centuries employed in Japan and China, and was introduced into England in 1679, by Dr. Ten Rhyne,‡ but did not come into general use till 1810, when Dr. Berlioz,§ of Paris, wrote in its favour.

The needles generally employed are of steel, long and fine, and furnished at the blunt end with a knob of sealing-wax or ivory. They are best introduced by slight pressure, and a semi-rotatory motion between the thumb and fore-finger, and should be withdrawn with the same motion. The pain is comparatively trifling; indeed, often scarcely felt. The operation may be performed in muscular, aponeurotic, and tendinous parts, and the needle introduced from one-fourth of an inch to two inches, according to the thickness of the muscles. Dr. Elliotson,‖ from whose

* On Fevers, 1862, p. 266.
† Op. cit., p. 570.
‡ De Arthride Mantissa Schematica, &c., 8vo, Lond. 1683.
§ Mémoires sur les Mal. Chroniques, Paris, 1816.
‖ Cyc. Pract. Med., vol. i. p. 32, et seq.

able paper on this subject a great part of this article is extracted, advises that it should not be passed into viscera and articulations, as practised by Berlioz and other French physicians. In general, no fluid escapes when the needle is withdrawn, but occasionally a drop of blood follows. If hæmorrhage occur, as sometimes happens, it may be restrained by gentle pressure. The period during which the needle remains in the part is of great importance: the pain sometimes ceases instantly, but, as Dr. Elliotson remarks, if one needle be allowed to remain in an hour or more, the operation is more efficacious than when several are inserted and speedily withdrawn. In some cases it requires to be repeated several times, but generally twice is sufficient. The *modus operandi* of acupuncture is extremely obscure, neither counter-irritation, galvanism, nor mental emotion being sufficient to account for its beneficial effects.

2885. *Therapeutic Uses. In Neuralgia*, acupuncture is often effectual. It is principally indicated in cases of a rheumatic character, which are not dependent upon inflammation or organic disease. It has been more used in French and German practice than in English. Prof. Riberi* relates five obstinate cases which completely yielded to its use; and Dr. Osborne† speaks highly of its efficacy in *Sciatica*, which, he states, it seldom fails to relieve.

2886. *In Rheumatism*, it has proved signally beneficial. Of 129 rheumatic cases treated by Cloquet, 85 yielded to acupuncture; of 34 published by other practitioners, 28 were cured; of 42 cases treated by Dr. Elliotson, 30 were cured, and the remaining 12 had clearly not been adapted for the remedy. Dr. Elliotson observes, "Experience has fully confirmed the fact, that if Rheumatism be at all inflammatory, if it be accompanied by heat, or is aggravated by a high degree of heat, no relief is, in general, to be expected from acupuncture. The omission of this distinction, and the neglect of a little trouble to make it with nicety, is the chief cause of the operation proving unsuccessful in Rheumatism."‡ Cases of *Muscular Rheumatism* successfully treated by acupuncture are recorded by Dr. Leared.§

2887. *In Hydrocele*, it was employed successfully in fifty cases by Mr. Lewis.‖ Although, in many instances, it may doubtless prove effectual, it often fails altogether to effect a radical cure, and in every respect is inferior to paracentesis and Iodine injections.

2888. *In Unconsolidated Fracture of the Thigh*, acupuncture

* Gaz. des Hôpitaux, No. xcvi.
† Dub. Med. Journ., vol. xii.
‡ Cyc. Pract. Med., vol. i. loc. cit.; and Med.-Chir. Trans., vol. xiii. p. 467.
§ Med. Times and Gaz., Nov. 30, 1861.
‖ Lancet, 1836-7, p. 559.

was successfully employed by M. Lenoir.* It is a mode of treatment first proposed by M. Malgaigne.

2889. *In Dropsical Affections, particularly in Œdema and Anasarca*, acupuncture has been successfully employed. It is not required in these diseases, that the needles should be passed in deeply; it is only necessary that the point should pierce the cutis. As soon as this is effected, and the needle is withdrawn, a small drop appears at the puncture, which augments till the fluid runs down, and the oozing will continue for a considerable period. It is extraordinary how much fluid may be let out in this way. Dr. Watson† relates a case in which the fluid which oozed from a puncture in the thigh (in a case of Anasarca) was caught and measured. It was found that a fluid drachm and a half escaped in a minute, which is at the rate of 11¼ oz. in an hour; and this drain went on for upwards of four hours. Dr. Elliotson states that he has frequently had recourse to it, with advantage, in *Œdema of the Scrotum and Penis;* and that, although he has employed it in all parts of the body, he never saw any inconvenience or ill effects follow its employment. Some cases are, however, recorded in which it has been succeeded by sloughing. It can only be regarded as a palliative, doing nothing towards the removal of the cause of the disease, but the amount of temporary relief which it affords is often very great.

AFFUSION, COLD. See WATER.

2890. ALKALIES. Called also Antacids and Absorbents, include Potash, Soda, Ammonia, Lime, and Magnesia, and their carbonates. The Carbonate of Lithia is also a powerful medicine of the same class. In their pure states, Potash, Ammonia, and Lime are sometimes employed as escharotics. The carbonate is the form in which they are generally administered internally. The following are some of the principal objects attained by their employment:—

As Antacids. It is in this character that alkalies are chiefly employed; and if given judiciously, they perform their office with certainty and rapidity; but if given indiscriminately, or in too large or too long-continued doses, they are productive of great mischief. Dr. Prout's‡ observations on this point well merit attention. "Alkalies," he observes, "exert no *curative* effect, that is, they will not prevent acidity; on the contrary, when taken in large doses, and at improper times, the effect of alkalies is to cause an absolute increase of acid. Thus, when a large quantity of Alkali is taken into an empty stomach, the

* Bull. de Thérap., 1851.

† Lectures on the Principles and Practice of Med., vol. ii. p. 653.

‡ On Stomach and Renal Diseases, 4th Ed., p. 91, et seq.

immediate effect is, that the stomach, in endeavouring to resume its natural condition, throws out an additional quantity of acid to neutralize the redundant alkali. When alkaline remedies, therefore, are injudiciously persisted in, a daily contest arises between the stomach and the doctor. If the constitution be strong, the stomach usually gains the ascendency, but at the expense of extraordinary labour in the secretion of a greater quantity of acid. If, on the contrary, the stomach be weak, the doctor may conquer, but at the risk of still further enfeebling the vital power of that organ; and in both instances the general result will be that the diseased functions of the stomach will be augmented rather than improved. The beneficial effect of alkaline remedies is confined to the neutralization of the acids already formed, thus preventing their secondary effect on the system." To the above valuable remarks it may be added, that a certain amount of acid is necessary to carry on the digestive process, and that by the free use of Alkalies we neutralize, not only the superabundant, but the necessary amount of acid, thus establishing a state worse than the first. It may be stated in general terms that the person who habituates himself to the use of Alkalies will, in a shorter or longer time, be the subject of the most obstinate forms of Dyspepsia. Other ill consequences follow the injudicious use of Alkalies: they apparently alter the quality of the blood, destroy the cohesive property of the blood-corpuscles, render the fibrin less plastic, induce a thin and liquid state of the circulating fluid, petechiæ appear on various parts of the body; the patient perspires profusely, becomes low-spirited and emaciated, and less capable than when in health of physical exertion; the assimilating functions are deranged, and serious disorder of the nervous system results. In some habits, Alkalies occasion a deposit of phosphates in the urine. Magnesia produces these effects less rapidly than the other Alkalies.

2891. When Alkalies are given with a view of correcting acidity of the primæ viæ, they should not be given immediately after a meal, as they would interfere with the digestive process, but in about three or four hours afterwards, when the digestion of the last meal may be supposed to be about completed. Vegetable bitter infusions should not be employed as a vehicle, as they neutralize or destroy, according to Dr. Prout, the antacid properties. If the acidity be confined to the lower portions of the intestinal canal, the more insoluble antacids, as Magnesia, are preferable to Potash, and the more soluble carbonates. There are some individuals who cannot take Alkalies in any form, however strongly their use appears to be indicated. In some they produce great excitement, particularly of the nervous system and of the cerebral functions. Dr. Prout mentions many such cases. In others, when Alkalies cannot be tolerated in a

free or carbonated state, they can often be taken in conjunction with a vegetable acid; and in others, the addition of Ammonia will cause them to be borne. Potash disagrees with some persons who can take Soda or Magnesia with impunity.* When Alkalies are given with a view of obtaining their diuretic effect, they should be combined with Acetic or some other vegetable acid, and administered largely diluted.

2892. *As a means of rendering Acid Urine Alkaline*, this class of remedies is much employed. Liquor Potassæ, the Carbonates and the Salts of Potash, with vegetable Acids (*e. g.*, the Acetate and Citrate), are most frequently prescribed for this purpose. The causticity of Liquor Potassæ interferes with its administration in doses sufficiently large to render highly acid urine alkaline;† otherwise it is particularly eligible, as it is believed to diminish *ardor urinæ*, and to allay vesical irritation, which frequently accompany an acid state of the urine. The Acetate, Citrate, and Tartrate of Potash are decomposed in the system, and are converted into carbonates. The corresponding preparations of Soda may be employed for the same purpose; but it is held by many that the action of Soda is rather directed to the liver and its secretion, whilst Potash is believed to act more energetically on the kidneys. The Urate of Potash, also, being much more soluble than the Urate of Soda, the former alkali is preferable when an excess of Uric Acid is present in the urine. According to Garrod, the Carbonate of Lithia exerts a more powerful effect in rendering the urine alkaline than do the corresponding salts of Soda and Potash.‡ The Salts of Ammonia, with a vegetable acid, exert no influence in producing an alkaline condition of the urine.§ Dr. Owen Rees‖ suggests the administration of Alkalies *when the urine is highly alkaline.* He observes that there are some cases in which the urine may be supposed to be acid on its leaving the kidneys, but by its irritation of the internal surfaces of the ureters and bladder, to produce so copious a secretion from them of alkaline mucus, as to cause the acidity to be more than neutralized, and the urine to be rendered alkaline with phosphatic deposits. Acting upon this view, Dr. Rees administered Alkalies in numerous cases, and the result fully corroborated the correctness of the theory. The remedy should be given in small doses. The influence of Alkalies in checking the production of *Artificial Diabetes* has been ably shown in the important researches of Dr. Pavy.¶ The investigation is well worthy of further research.

* See Dr. Prout, op. cit.; Sir B. Brodie on Dis. of the Urinary Organs; and an able paper by Mr. Rowe, Dub. Med. Journ., vol. xviii. p. 277.

† Garrod, Ess. Mat. Med., p. 103.

‡ Op. cit.

§ Garrod, Med. Times and Gaz., Feb. 6, 1864.

‖ Analysis of the Blood and Urine, p. 137.

¶ Guy's Hospital Reports, 1861, vol. vii.

2893. *As alteratives in Gout, Rheumatism, Scrofula, Phthisis, Bronchocele, &c.*, the Alkalies prove useful, partly by their property of liquefying or attenuating the blood and the various secretions, and partly by correcting any abnormal acidity which may be present in the stomach or in the circulating fluid. In the former of these ways they prove useful *in the advanced stages of Pneumonia and Bronchitis*, when the expectoration is thick and viscid. As a liquefacient remedy, the Liq. Potassæ is perhaps the best form which can be employed. The carbonated Alkalies are generally less efficacious.

2894. Alkalies are also employed as a means of supplying the blood with those alkaline principles which are excreted from the system in the form of profuse discharges, &c. It is well known that a large portion of the saline particles of the blood are held in solution or suspension in the serum of the blood; and consequently, when, from any morbid action, a great amount of fluid is abstracted from the system, whether *in the profuse perspirations of Phthisis*, or in the copious dejections of *Cholera*, the discharge contains so large a quantity of salines, as to incapacitate the vital powers from performing their functions in a normal manner. In order to remedy this mischief, Alkalies are administered, and to prove effectual they should be given in small doses, largely diluted.

2895. The well-known chemical affinity of Alkalies for fat has led to their employment in the treatment of *Obesity*. In this capacity, they have been found most serviceable by Flemyng, Chambers, and others.

For the special action of each of the Alkalies, the reader is referred to the articles on each in the former part of the work.

2896. Alteratives are medicines which gradually correct the deranged or morbid condition of an organ, or of the constitution, and restore it to its healthy or normal state, without evidencing their action by an immediate or sensible evacuation. There are few medicines which may be regarded as solely alterative, but there is scarcely a single drug, however violent in its operation in large doses, which may not, by the proper regulation of the dose, or by its mode of preparation, be converted into an alterative. Mercury, Arsenic, and Antimony may be taken as examples of this fact.

Alteratives are especially applicable to chronic diseases and passive derangements; those of an acute character requiring a more active class of remedies. In all chronic diseases, it may be laid down as a general rule, that nothing is to be gained, and that much permanent mischief may result, from the employment of violent remedies. When medicines are given with

a view to their operating as alteratives, they generally require to be administered in small doses, and to be persevered in for a lengthened period, namely, for weeks, and perhaps months; the practitioner being satisfied with witnessing, at considerable intervals, an improvement, however small, in the state of the patient. A careful regulation of the diet, and a strict attention to personal hygiene, are indispensable auxiliaries to an alterative course of medicine. Without these, remedies can be of little avail.

2897. ANAPHRODISIACS are medicines which subdue and destroy sensual habits and feelings. They do not demand any lengthened notice; indeed, their existence as a class has been denied by some writers; there, however, appears but little doubt that certain medicines do act in this manner. At the head of these may be placed Bromide of Potassium, Digitaline, Lupulin, and Camphor. The extracts of Lettuce and Hemlock are also reputed to have this effect; and Tartar Emetic, by its depressing action on the vascular system generally, and the saline purgatives, may be regarded as belonging to this class. The diseases in which they are indicated are *Nymphomania and Spermatorrhœa.*

2898. ANÆSTHETICS are agents which prevent pain, and diminish sensibility. They may be divided into two classes:—1, those which, either given internally, or applied locally to the part, effect these objects; as Opium, Aconite, Belladonna, &c., all of which are more properly considered under the heads of Narcotics, Anodynes, or Sedatives; and Ice, or congelation, whose anæsthetic power is *sui generis:* 2, those, the vapours of which induce more or less complete insensibility, and thus allow the performance of surgical and other operations, without pain or consciousness on the part of the patient. To the second class, the following observations principally refer. The chief articles of this class are,—1, Chloroform; 2, Ether; 3, Hydrobromic Ether; 4, Coal Gas; 5, Chloride of Olefiant Gas, or Dutch Liquid; 6, Bisulphuret of Carbon; 7, Aldehyde; 8, Amylene; 9, Acetone. There are also others of minor importance.

2899. Although this class of remedies has only, within the last few years, been brought into general use in European practice, it appears probable, from a Chinese work now in the National Library at Paris, that anæsthetic agents during surgical operations were in use among the Chinese above 1600 years ago.*

The properties common to all the articles of this class are,—

* See Comptes Rendus, Jan. 29, 1850.

1, volatility; 2, the presence of Carbon; 3, solubility in the serum of the blood.

Their mode of action has been supposed to be, primarily, upon the nerves; secondarily, upon the respiration, the heart, and the circulation. But there is no doubt that these agents enter into the blood. Under the influence of Chloroform and Ether the amount of carbonic acid excreted in respiration is diminished, showing that the processes of oxidation in the body are interfered with. Dr. Snow believed that it was the special property of Chloroform and other volatile narcotic fluids to arrest oxidation. He observed that the venous blood of patients under the influence of Chloroform was less dark in colour than in the normal state.

They all act, more or less, in the first instance, as stimulants. With Chloroform, this stimulus is comparatively slight; with Ether, Aldehyde, &c., it is more considerable.

Their action may be local. When applied to a limited portion of the body, that portion is rendered anæsthetic.

Chloroform is the most powerful, but not the safest of this class. Ether produces much excitement, and leaves headache; but is not so liable as Chloroform and some others to produce fatal consequences. A mixture of Ether and Chloroform with Alcohol, as recommended by the Committee of the Royal Medico-Chirurgical Society, is perhaps the best anæsthetic that can be employed. (See CHLOROFORM, part i.)

Their action is far from uniform. The same dose does not produce the same effects, even in the same individual at different periods.

The young bear proportionably larger doses than adults.

Hysterical females are peculiarly susceptible to their action. *The danger is proportioned to the concentration of the vapour.* It is, therefore, necessary that the air should be allowed to mix freely with it.

Some of these agents, externally applied, do not produce any irritation of the skin, *e.g.*, Ether and Aldehyde; whilst others, as Chloroform and Dutch Liquid, cause a sense of burning, and, if applied for a sufficient length of time, vesication. The energy of local anæsthetic power is in an inverse ratio to volatility. (M. Aran.)

Measures to be adopted in case of an over-dose. 1, Artificial Respiration by the Marshall Hall or Sylvester methods, or by mouth to mouth insufflation; 2, Galvanism. In all cases the patient should be exposed to a cool and pure current of air, the mouth should be opened, and the tongue drawn forward. In slight cases Ammonia to the nostrils and the cold douche may be sufficient to restore the patient.

The therapeutic applications of this class are considered at length in the article CHLOROFORM, part i.

2900. Anodynes are literally medicines which relieve pain. In this point of view the term has a most extensive signification, including narcotics, anæsthetics, antispasmodics, blood-letting, Quinine, Arsenic, and other remedies of a greatly diversified character; in fact, it applies to all medicines which relieve pain, from whatever cause it may arise. The term, however, is generally restricted to those medicines which act upon the brain and nervous system, producing torpor and sleep. Those most commonly employed internally are, Opium, Belladonna, Conium, and Henbane, to which may be added Hydrocyanic Acid. Many substances externally applied are unequivocally anodyne; *e.g.*, hot water, either pure, or containing Poppy capsules. Ice, externally applied, also relieves pain, and is, consequently speaking, an anodyne. The diseases in which anodynes are indicated are all those characterised by the presence of pain. The term has too general an application for practical purposes.

2901. Antacids are medicines employed to neutralize acidity. They are considered in the article Alkalies (*ante*).

2902. Anthelmintics are agents which destroy, or cause the expulsion of, intestinal worms. They are sometimes called Vermifuges. They may be divided into four classes:—1. Specific. 2. Mechanical. 3. Purgative. 4. Corroborant or Preventive.

1. *Specific Anthelmintics* are those which, by some poisonous property which they contain, destroy the worm whilst in the intestines. In this division may be classed Turpentine, the Male Fern, Pomegranate, Sabadilla, Kousso, Wormseed, Santonin, Rottlera, and Spigelia. The evidence of their specific action is that the worm is expelled lifeless. Most of this class require a brisk purgative to assist and complete their action.

2. *Mechanical Anthelmintics* operate by irritating and wounding the worms, and thus oblige them to leave their hold on the mucous coat of the intestine. Of this class, two only are at present employed, and even these rarely: viz., Tin-filings, and the setæ or hairs of the pod of the Mucuna Pruriens or Cowhage. That they do not act poisonously on the worm is evident from the fact that, under their use, it is generally voided alive. A brisk purgative is required to evacuate the worm after it has been obliged to quit its hold on the mucous membrane.

3. *Purgative Anthelmintics* are those which cause the expulsion of the worm, by their action on the intestinal canal. This they effect, partly by increasing the peristaltic action of the bowels to such a degree that the worm is unable to retain its hold, and partly by clearing away the accumulations of mucus with which the worms are so often found surrounded. The

worms thus become detached, and are expelled generally alive. All the more powerful purgatives, particularly Scammony and Jalap, are included in this class. In every case their operation is increased by a combination with Calomel; indeed this last medicine may itself lay some claim to the character of a specific anthelmintic, as worms are sometimes expelled dead after a full Calomel purge. Purgative anthelmintics are peculiarly adapted for children; the Pulv. Scammon. Co., in full doses, is, perhaps, the most efficient of the class.

4. *Corroborant or Preventive Anthelmintics.* In order to ascertain the remedies to be classed in this division, it is necessary to ascertain, first, what condition of the intestines or system is most favourable to the development of these parasites; and having done this, it should be the object of the practitioner to apply those remedies which appear the most probable to remove that condition. Now, it appears that debility, and a vitiated state of the secretions dependent upon unwholesome diet, are conditions the most favourable to their production; and to remove this state, wholesome, digestible food, ferruginous preparations, and vegetable bitters, are indicated, and will, in the majority of cases, prove successful. Common salt appears to be particularly effectual, and considerable quantities may be given, not only as an article of diet, but as a medicine. The absence of salt as an ordinary condiment appears, more than any other circumstance, to favour their production. The Sulphate of Iron I have found an excellent preventive. Dr. Paris states that, in his experience, Hydrochloric Acid with infusion of Quassia is the most efficacious remedy of this class.

2903. It should be remembered that certain anthelmintics are more effectual against one class of worms than against others: thus, Pomegranate, the Male Fern, Sabadilla, Rottlera, Turpentine, and Kousso are chiefly effectual against *Tænia Solium, or Tape-Worm;* purgatives of Calomel and Scammony or Jalap, the Oil of Turpentine, Tin-filings, Cowhage, Spigelia, Santonin, Andira Inermis, &c., against *Ascaris Lumbricoides, or Round Worm;* and enemas containing Turpentine, T. Ferri Sesquichloridi, Quassia, Olive or Castor Oil, Assafœtida, and common salt, against *Ascaris Vermicularis, or Thread-Worm.* It is only against the last class (thread-worm), and then only when situated in the rectum or lower intestines, that enemas, either simple or medicated, can be of any permanent benefit. (See Enemas.) The irritation caused by this worm is best relieved by enemas of Olive Oil. As a general rule, anthelmintics are less efficacious when given singly than when given combined with other medicines of the same class.

2904. Antidotes are remedies given to counteract the noxious

effects of poisonous substances. They are of two classes, Chemical and Mechanical. The first includes all those agents which, when taken internally, decompose the poison, and render it inert or less noxious; the second comprises those agents which act simply by sheathing the mucous surface of the intestines, enveloping the poisonous particles, and obstructing their absorption. Amongst these may be mentioned gelatinous, albuminous, oleaginous, and saccharine substances, demulcents, &c. The two classes of antidotes may often be advantageously combined.

2905. Antiphlogistic, a term applied to agents which are employed to diminish or subdue inflammatory action. Amongst the remedies chiefly classed under this denomination are, blood-letting, Calomel, Antimony, Digitalis, and Colchicum. They operate by lowering the action of the heart and arterial system, reducing vascular excitement, diminishing the quantity of fibrine in the blood, and increasing all the secretions, particularly those of the skin and bowels.

Antiphlogistic regimen is the system of diet and hygiene employed to co-operate with the above-named remedies. It consists of low diet, and bodily and mental rest. It includes abstinence from animal food, from all spirituous, vinous, and fermented liquors; the avoidance of all strong emotions and mental agitations, of muscular action, in fact of everything which may tend to quicken the circulation, or cause disturbance, either mentally or bodily. If a limb be inflamed, rest in the horizontal position should be maintained; if the brain or head, an erect position is preferable; if the lungs, all exercise of the vocal organs should be prohibited; if the eye, strong lights should be avoided; if the ear, silence should be enforced. The admission of pure air, by proper ventilation, into the patient's apartment, is a point never to be neglected. A temperature of about 62° F. should be maintained.

It is indicated, 1, *in all acute inflammatory, and febrile Diseases, of a sthenic type,* occurring in healthy subjects; 2, *in plethora;* 3, *in Acute Hæmorrhage;* 4, *in certain injuries, particularly in those of the Head and of the Eye.*

2906. Antispasmodics are remedies which relieve existing spasm, and prevent its recurrence. They may be divided into four classes, as follows:—

1. *Narcotic Antispasmodics.* Those which deaden the sensibility and irritability of the nervous system generally, and thus allay that irregular and violent contraction of muscular fibre which constitutes what has been denominated a true spasm. Amongst this class may be enumerated the narcotics, particu-

larly Opium and Belladonna. The former generally affords more speedy relief, but it is not of so permanent a character as that obtained from Belladonna. The operation of all this class is attended by more or less subsequent narcotism.

2. *True or Specific Antispasmodics.* This class includes Assafœtida, Valerian, Musk, Castor, Galbanum, &c., medicines which relieve spasms without producing any other sensible effect on the system. It is generally considered that they produce benefit by their stimulant action; but how this can be the case, when the spasm itself, in many cases, arises from excessive stimulus or irritation of muscular fibre, remains to be explained. When, however, the spasm arises, as it doubtless often does, from deficient nervous energy, this explanation is much more satisfactory.

3. *Tonic Antispasmodics*, or those agents which establish a healthy tone of the nervous system. This class includes the Nitrate of Silver; the Oxide of Silver; ammoniated Copper; the Sulphate, Oxide, and Valerianate of Zinc, &c. Remedies of this class are of little or no service during a paroxysm; the intervals being the proper time for their administration, and their utility being confined to preventing a recurrence of the spasm. They appear to operate by establishing a tonicity and healthy condition of the nervous system, thus preventing the occurrence of abnormal irritability of the nerves, and consequent inordinate contractions of muscular fibre. They all require to be persevered in for a lengthened period; indeed, few of them exercise any permanent benefit, if not continued for weeks, or even months.

4. *Stomachic Antispasmodics*, or those agents which, by correcting a deranged state of the stomach and digestive organs, operate indirectly in establishing a healthy condition of the nervous system. Visceral derangements are a frequent cause of great nervous irritability; and, as a consequence, a tendency to irregular muscular contractions in various parts of the body. This deranged state of the digestive organs may arise from so many causes, that the practitioner must examine minutely into each case, before determining on the remedy, or class of remedies, likely to prove most serviceable: thus, if it arise from a vitiated state of the biliary secretion, a mild course of Mercury, or even a single dose of Calomel, may be sufficient; if from abnormal acidity, alkalies are indicated; if from the presence of worms, anthelmintics; but it may be laid down as a general rule in all spasmodic diseases, that strict attention to the state of the alvine secretions, and of the digestive functions, is indispensable.

2907. In the practical application of Antispasmodics, the only point which requires particular notice is the necessity of dis-

tinguishing clearly between spasm and inflammation, a point of occasional difficulty. In spasm, as compared with inflammation, it may be stated generally, that the pain comes on more suddenly, is of a more acute and distressing character, is relieved by slow and continued pressure (whilst that of inflammation is increased), is accompanied by intervals of comparative or positive ease; the pulse in the meantime is not accelerated in proportion to the amount of pain, and wants that peculiar, wiry throb which accompanies inflammation of serous membranes. For the other distinguishing marks, the reader is referred to the lectures of Drs. Watson, Graves, &c. It is only necessary to add, that spasm will be relieved by the above-named remedies, sometimes in a marked and sudden manner, whilst the pain of inflammation will be either only slightly eased, or in some cases even increased, by them.

2968. Aphrodisiacs are medicines which excite sexual desires, or venereal power. Cullen denied their existence; but it is generally admitted that certain substances may, either by invigorating the system generally, or by their local action, stimulate the organs of generation. Dr. O'Shaughnessy states that Cannabis is unequivocally aphrodisiac; and Nux Vomica, with its active principle Strychnine, as well as Phosphorus and Cantharides, undoubtedly appear to act as sexual stimulants. *Impotence* is the only disease which requires their use. Many articles of diet, as oysters, &c. are reputed aphrodisiacs, but on insufficient grounds.

2909. Astringents are agents which cause a contraction of the capillaries, constringe muscular fibre, coagulate albuminous tissues, and solidify the parts to which they are applied. When used externally, to arrest superficial hæmorrhage, they are denominated Styptics. The purposes for which they are employed are thus enumerated by Dr. Pereira—1, to stop preternatural secretion from mucous surfaces, as in Leucorrhœa, Gonorrhœa, and Gleet; 2, to check profuse secretion from ulcerated surfaces; 3, to stop hæmorrhage, as from the uterus and piles; 4, to strengthen and constringe relaxed parts, as in prolapsus; 5, to subdue inflammation of superficial parts, *e.g.* Nitrate of Silver in Erysipelas. When thus used, they are sometimes called Repellants. The great majority of astringents act chemically, coagulating the albumen of the blood.

Indications for their Use. 1, Atonic or passive Hæmorrhage; 2, non-inflammatory Diarrhœa; 3, Diabetes; 4, chronic discharges, as Gonorrhœa, Gleet, and Leucorrhœa; 5, excessive mucous discharges from the lungs, stomach, bladder, and other mucous surfaces, when attended with relaxation of the parts,

and atony of the system; 6, ulcers with copious secretion; 7, profuse perspirations of Phthisis, and other diseases.

Contra-indications. 1, Inflammation; 2, Active Hæmorrhage, Inflammatory Diarrhœa, and excessive mucous discharges attended by inflammation; 3, rigidity of parts; 4, extensive external injuries. In these cases the local application of astringents will not only fail to arrest the hæmorrhage, but may excite excessive irritability or inflammation of the surrounding tissues. (See STYPTICS.)

2910. BATHS. It would be beyond the limits of this work to consider at length the effects of various baths on the animal economy, in health as well as in disease; in the present article, therefore, a few important particulars as to their employment as therapeutic agents will be considered. For further particulars, the reader is referred to an excellent treatise by Dr. Forbes,* from which the greater part of this article is drawn.

Baths are divided into :—

1. The Cold Bath,	from	33°	to	60° F.
2. The Cool Bath,	,,	60°	,,	75°
3. The Temperate Bath,	,,	75°	,,	85°
4. The Tepid Bath,	,,	85°	,,	92°
5. The Warm Bath,	,,	92°	,,	98°
6. The Hot Bath,	,,	98°	,,	112°

2911. THE COLD BATH is employed chiefly with a view of producing one of the three following effects :—1, the shock on the nervous system, independently of the accompanying refrigeration, or subsequent reaction; 2, refrigeration, independently of the nervous shock, or vascular reaction; 3, reaction, independently of the shock or refrigeration. The two first of these objects are of inferior practical importance; the last comprehends nearly the whole doctrine of cold bathing.

2912. *Observations on its Use.* 1. The morning is the most proper period for the cold bath. 2. It should not be taken whilst the body is in a state of profuse perspiration. 3. It is objectionable immediately after a full meal. 4. The head should, if possible, be immersed first. The advantage of the plunge bath is, that this object is effected suddenly, and with certainty. 5. It should never be continued so long as to cause shivering, blueness of the nails, &c.; five or ten minutes is a sufficient time for one bath. 6. If it produce these effects, the bath should not be repeated at the same temperature, or for the same length of time. 7. After coming out of the bath, the body should be rapidly dried, and gentle exercise taken.

2913. *Cautions and Contra-indications.* The cold bath is in-

* Cyc. Pract. Med., vol. i., art. Bath.

admissible under the following circumstances:—1. During the menstrual period, and only with great caution during pregnancy. 2. In great plethora, or in cases where there exists a tendency to any active Hæmorrhage, Apoplexy, Hæmoptysis, &c. 3. In persons affected with disease of the heart, particularly with dilatation or valvular obstructions; or in those having a tendency to disease of the heart. 4. In indurations, obstructions, or chronic inflammations of the internal parts of the body; likewise in all acute inflammations of these parts, more particularly of the principal viscera. 5. In loaded states of the bowels, more particularly if combined with an engorged condition of the venous system of the abdomen. 6. In most cutaneous diseases, particularly in such as are apt, when suddenly removed, to be followed by internal affections. 7. In great general debility, and where there does not exist sufficient power of reaction, more especially if there exist an habitually cold state of the surface. 8. In scrofulous disease; and it should be used with great caution when a predisposition to this disease exists. 9. It is less applicable in infancy and in old age than in youth or middle life.

2914. *The Cold Bath is generally applicable* to those cases in which there is much languor and weakness of the circulation, accompanied by profuse perspirations, a relaxed state of the system generally, and a deranged condition of the nervous system, which are so frequently the consequence of debilitating diseases, or intense study, &c. In short, from whatever cause it may arise (disease of the internal viscera excepted), when great relaxation and debility exist, the cold bath, properly employed, will be found a valuable therapeutic agent.

2915. *Therapeutic Uses. In Spasmodic Asthma*, many writers, particularly Dr. Ryan,* strongly advocate the employment of the cold bath. It is stated to lessen the morbid sensibility to the impression of cold, atmospherical changes, &c., and to give a tone and vigour to the system. It is to be employed only in the intervals, never during a paroxysm. Simply sponging the body is preferred by some to immersion. Salt (℥j. ad Aq. Oj.) may be added with advantage, and the body should afterwards be rubbed with rough towels, or a flesh-brush. The best time for using it is immediately after getting out of bed in the morning. Dr. Watson prefers the use of the shower-bath.

2916. *In the Chronic stages of Hooping-Cough*, the cold bath is sometimes attended with excellent effects. The cold shower-bath is sometimes more effectual.

2917. *In Nervous diseases, when unconnected with disease of the Brain, and in those cases of Paralysis consequent on severe*

* On the History and Cure of Asthma, Lond. 1793.

inflammatory attacks of the Brain and Spinal Column, the use of the cold bath, particularly the shower-bath, is often attended with the most decided benefit. *In Congestive and Hysterical Headaches*, the shower-bath may be used with advantage.

2918. *In Maniacal cases*, the cold shower and douche baths have been employed with occasionally good effect, but their use has more frequently been attended by an aggravation of the symptoms. They are chiefly serviceable in young subjects, when the constitution is relaxed, and predisposed to hysteric affections. They are altogether inadmissible in old cases, with a disposition to congestion of the head.

2919. *In Chorea*, the cold shower-bath is especially valuable. Dr. Babington* relates several cases successfully treated by it. Dr. Watson† regards it as the most effectual tonic which can be employed, and Dr. R. B. Todd‡ states that it excites a disposition to sleep more decidedly than opiates, which do not generally act favourably in any of the forms of Chorea. (See also *Epilepsy*.)

2920. *In Epilepsy*, "the cold shower-bath," observes Dr. Watson,§ "is one of the most useful remedies employed for strengthening the body. This tends," he continues, "perhaps more than any single measure, to give permanent firmness and steadiness to the system." The best test in all cases of the tonic and bracing effect of this remedy is the occurrence of a pleasant and general glow after each application of it. It is the only safe mode in which the cold bath can be used by an epileptic person. In this case, as in Chorea, if the patient be of a feeble constitution, the water may at first be used tepid; by degrees it should be used cold. It should be employed every morning, or every other morning, as soon as the patient gets out of bed.

2921. *In some forms of Hysteria, in Hypochondriasis, and in Nervous Prostration*, after excessive study, or debilitating disease, the shower-bath, as advised in the last section, proves in the highest degree useful.

2922. *In Scrofula*, salt-water baths, both hot and cold, have been strongly advocated by White, Cullen, Russel, Thompson, and others; but that they exercise any direct beneficial influence on the disease is denied by Lloyd, Chalk, Phillips, &c. Their chief efficacy appears to depend upon cleansing the body, opening and stimulating the pores of the skin, and allowing the cutaneous exhalation to be carried on with normal activity. It should also be observed that sea-bathing has generally been employed at those seasons of the year at which, without any treatment, all the symptoms of Scrofula are alleviated, viz., summer and

* Guy's Hosp. Reports, vol. xiii.
† Lectures, vol. i. p. 665.
‡ Lectures, Med. Gaz., April 27, 1849.
§ Op. cit., p. 651.

autumn. In very weakly subjects, however, or when softening of tubercular matter has taken place, so far from being beneficial, cold-water bathing is decidedly injurious, producing a degree of depression, from which the constitution can with difficulty recover itself.

2923. *In Spermatorrhœa*, cold hip-baths are stated to be of the highest value. The patient should begin by sitting in a hip-bath for five minutes three times a day, the water being about 65° F. The time is gradually increased, and the temperature lowered, until the patient sits for twenty minutes, thrice daily, in water at 50°. In some cases the spine is sponged for three or four minutes before leaving the bath, and very often a shower-bath is used after the first daily sitting bath, the head being protected by a conical cap. Gentle exercise for five minutes before, and half an hour after, each of these processes, is ordered. It has been found particularly beneficial in persons who have been debilitated by a long residence in a hot climate.* *In Prostatorrhœa*, the cold hip-bath is often of great service.

2924. *In Tetanus*, the application of cold water is as old as Hippocrates. In modern times, the cold bath has been strongly advised by Drs. Cochrane, Wright, Currie, and others; but it signally failed during the Peninsular War, and is now rarely employed, as it has appeared in several instances rather to have hastened a fatal termination.

2925. The Shower-Bath in its operation and effects is very similar to the cold bath, but the immediate shock it communicates is much more violent, particularly if the quantity of water is great, the temperature low, and the fall considerable. Its indications and contra-indications are those of the cold bath (*ante*), and it is applicable to the same class of diseases. When the brain and nervous system are deranged, it often proves most serviceable. (See Cold Bath.)

2926. The Douche Bath consists of a small stream of water, directed with considerable force, by means of a tube, on some particular part of the body. It varies in its power, according to the diameter of the stream, the temperature of the water, and the force with which it is projected. It is a very powerful agent, and requires to be used with much circumspection.

2927. *Therapeutic Uses. Infantile Convulsions* are often mitigated, if not entirely removed, by a thin stream of cold water, directed at an elevation of two or three feet, on the vertex. It is often attended with immediate effect, and is preferable to the use of the hot bath, in plethoric children. It was the favourite remedy of the late Dr. Abercrombie.

* Brit. For. Med.-Chir. Rev., July 1, 1851.

2928. *In Insanity*, the cold douche is sometimes highly serviceable. M. Foville directs a stream of cold water, through a flexible tube, immediately on the head. It was found to quiet the most violent maniacs. (Prichard.*)

2929. *In Syncope*, the cold douche, suddenly applied to the spine, has often an instantaneous effect in restoring consciousness.

2930. *In Spasmodic Stricture of the Urethra*, the cold douche on the thighs and pubes, is spoken of by Dr. Currie† as having been successful in relieving the spasm and allowing the flow of urine.

2931. *In incomplete Anchylosis*, Dr. Fleury‡ considers the cold douche to the parts as the most certain and speedy application for setting up a healthy action and effecting a cure. Forced movements, unless they cause great pain, should also be employed. *In Stiffness of Joints after injuries, or resulting from Rheumatism*, the use of the local cold douche has often an excellent effect.

2932. The Hot Bath (98° to 112° F.) and the Warm Bath (92° to 98° F.) are very valuable therapeutic agents in many affections, when judiciously employed.

The objects for which they are employed are,—1. To establish a sedative action on the nervous system. 2. To equalize the temperature of the whole body. 3. To modify the action of the skin, both as an exhalant and an absorbent organ, and at the same time to modify the texture of the skin. 4. To modify the frequency and force of the heart's action. 5. To equalize the distribution of blood throughout the system; thus, when a disproportionate quantity exists in the internal organs, it recalls it to the surface. 6. To relax the muscular system and all the external tissues.

They should be used with caution or are contra-indicated,—1, in very gross habits, in plethora of all kinds, and in great obesity; 2, in persons predisposed to apoplexy, or determination of blood to the head, hæmorrhage, particularly hæmoptysis, also in organic diseases of the heart and great vessels; 3, in great relaxation of the system, with a tendency to dropsy; 4, in all febrile diseases, whether accompanied with visceral inflammations or not, where there is a dry, hot skin, and an active circulation; 5, during the menstrual period, and the later stages of pregnancy. (Forbes.)

2933. *Therapeutic Uses. In inflammatory attacks of Children*, the hot bath often proves signally beneficial. It may be repeated daily, or even two or three times a day. It determines to the

* Cyc. Pract. Med., vol. ii.
† Med. Reports on Cola Water.
‡ Edin. Med. Surg. Journ., July 1849.

skin, promotes diaphoresis, relaxes the muscular system, and keeps the surface clean, which is a point of no small importance. *In Gastric, Remittent Fevers*, it proves highly serviceable. Dr. Locock* advises it to be repeated nightly.

2934. *In Insanity*, the hot bath has often a most soothing and salutary effect. *In the melancholy of Insanity*, Dr. Conolly† speaks of the hot bath as a most soothing and useful resource. He advises it to be employed just before going to bed, and the patient should remain in it from half an hour to an hour. *In Nymphomania*, Dr. D. Davies‡ speaks favourably of a tepid hip-bath, in which the patient might remain with great advantage for some hours, the temperature being proportioned to that of the central parts of her person, and to the excited state of the circulation. Previous to its employment, he advises leeches (twenty) to be applied to the external genital surfaces.

2935. *In Infantile Convulsions*, the warm bath, at 98°, is often most serviceable, cold or ice being simultaneously applied to the head. It is a measure which should never be omitted. The trunk should be immersed for ten or fifteen minutes. It requires to be used with caution in very plethoric children. *In Laryngismus Stridulus*, a hot bath may prove advantageous, if it can be used without fretting the child, a point carefully to be avoided.

2936. *In Granular Disease of the Kidney, Morbus Brightii*, Dr. Christison§ observes that the regular use of the warm bath every other evening or oftener, is very effectual in removing restlessness, anxiety, and want of sleep. At the same time, Dover's Powder, the Acetate of Ammonia, &c., should be given in order to promote diaphoresis.

2937. *In Dropsy after Scarlet Fever*, Dr. Todd‖ states that he knows of no more valuable and efficient remedy than the warm bath. "Indeed," he adds, "I would pronounce it the most valuable single remedy for this dropsy. It must be used frequently, bearing in mind that both the disease and the remedy have a depressing tendency. Most patients can bear it once a day for a few days; sometimes it may be given twice a day, but often it is not safe to venture even on its daily use. In cases where an access of dropsy is apprehended, the daily use of the warm bath during the period when desquamation is, or ought to be, taking place, often succeeds in arresting it." *In other Dropsical Affections*, the warm bath often proves most serviceable.

2938. *In Diabetes*, the use of the warm bath is much insisted upon by Dr. Marsh,¶ and other writers on this disease. It is a

* Lib. of Med., vol. i. p. 285.
† Lectures, Lancet, Jan. 1846.
‡ Obstetric Medicine, p. 344.
§ Lib. of Med., vol. iv. p. 292.
‖ Med. Gaz., Feb. 23, 1849.
¶ Dub. Hosp. Reports, vol. iii.

powerful and valuable means of promoting the cutaneous action, and of inducing copious perspiration. Care should be taken to prevent the access of cold air after coming out of the bath.

2939. *In Tetanus*, the hot bath has been used with the view of inducing relaxation of the spasms. It has never been extensively employed, but it was tried during the Peninsular War, and Sir James Macgrigor* states that it was found to produce only momentary relief. It appears to be wholly inadequate to control the disease. The hot bath is also used in order to relax the system, and thus to favour the reduction of *Dislocations* and the return of *Hernia*.

2940. *In Prurigo*, Mr. E. Wilson† observes that the first point, and one of the most important, is the daily employment of baths. Their temperature should not be higher than 70° F., and they may consist of simple water with soap, or the alkaline bath, or sulphur bath. *In Syphilitic Eruptions*, the same baths prove highly useful, but Mr. E. Wilson prefers, in most cases, the use of the vapour bath.

2941. *In Colica Pictonum*, Dr. J. Wilson‡ found the hot bath very effectual. Hot water was at the same time employed as enemas. Copious evacuations, and consequent relief, followed this treatment.

2942. *In Irritative and Inflammatory Affections of the Kidneys, Bladder, and Uterus, in Spasmodic Stricture of the Urethra, in the passage of Calculi, either renal or biliary*, and in many spasmodic affections of the bowels, the hot bath or the hot hip-bath proves highly serviceable and soothing.

2943. The Vapour Bath, commonly employed in British practice, is a small close cell or tent, in which the patient is either altogether or partially inclosed, and into which the vapour is conveyed by a simple apparatus. (For a simple vapour bath, see sects. 62, 645, and 2656.) It should be so constructed, that the patient may breathe the air or vapour at pleasure, by excluding or including the head, through an aperture at the side or top. The effects of the vapour bath are very similar to those of the ordinary hot bath; "But," as Dr. Forbes observes, "it is, on the whole, more derivative to the surface, more diaphoretic, and, probably, less generally stimulant." It seems, however, to have a less soothing effect on the nervous system. This result is partly owing to the more constrained and upright position in which it is usually taken. It is applicable to most of the cases enumerated under the Hot Bath; and the same rules are observable in its use, but it seems more particularly useful in *Dry*,

* Med.-Chir. Trans., vol. vi. p. 457.
† On Diseases of the Skin, p. 270.
‡ Med.-Chir. Trans., vol. vi.

Scaly, Cutaneous Affections, and in some forms of *Chronic Rheumatism*. The judicious employment of the vapour bath in these cases is attended with the best results. A case of *Hydrophobia* has recently been reported to have been cured by its use.

2944. *In Tetanus*, it was recommended by Dr. Marsh,* who gives two cases apparently cured by its use; and it has also proved successful in the hands of M. Sanson † and others. The patient should remain in it for a long time. Its use seems inadmissible in acute cases. (Dr. Bennett.‡)

2945. The Medicated Vapour Bath differs only from the ordinary vapour bath in having the vapour of various medicines either substituted for, or diluted with, that of water. It is a valuable and powerful therapeutic agent. (See Calomel, Sulphur, Camphor, &c., part i.)

2946. The Warm-air Bath (sometimes called the Sudatorium) consists in the temporary exposure of the naked body to the air of a common chamber, the temperature of which has been artificially raised. "The warm-air bath," observes Dr. Forbes, "is most analogous in its operation to the vapour bath" (*ante*). It seems to possess all its stimulating qualities, without its relaxing and soothing effects. It is, therefore, a much more exciting application, at the corresponding temperatures. It appears to be more powerfully derivative to the skin than any other bath, and more certainly productive of perspiration within a short period. *The diseases in which it has been found most beneficial are*,—1, *Congestive Fevers*, in which it has been found highly serviceable by Drs. Armstrong, Tweedie, and Forbes; 2, *Chronic Rheumatism*; 3, *Morbid Affections of the Skin*; 4, *the early stages of Cholera*; 5, *some Pulmonary Affections*; 6, *Diabetes*, in which it has been employed with excellent effect by Willis, Lefevre, Wylie, and Watson; 7, *Renal Dropsy*, which, according to Dr. Watson, is greatly benefited by its use.

2947. The Turkish Bath is essentially a hot-air bath, although when followed by cold ablution or affusion, as it usually is, it partakes more of the character of a Transition Bath. The procedure is now so well known, that any description of it would be superfluous in this place. The diseases in which it has been employed, in most cases with marked advantage, are,—*Chronic Affections of the Skin* in all its varieties; *Cacheetic Diseases*, such as *Scrofula, Syphilis, Incipient Phthisis, Malarious Intermittent and Remittent Fevers, Biliary Derangements, Gouty and Rheumatic Diathesis, Dyspepsia, Renal Affections, especially Bright's Disease, and Diabetes; Neuralgia, Hysteria*, and many *Nervous and Spasmodic Diseases*, as *Epilepsy &c.; Hypochondriasis, Para-*

* Dub. Hosp. Reports, vol. iv. p. 567.

† Journ. Hebd. de Méd., 1823.

‡ Lib of Med., vol. ii p. 245.

lytic Affections, Contraction of the Joints, Dropsy, Amenorrhœa, Dysmenorrhœa, Leucorrhœa, Catarrh, Influenza, &c. Discretion, of course, must be exercised in the selection of cases, as well as the particular stage of the disease in which it is to be employed. It is no specific in these cases, and will sometimes fail to afford relief in any given case: the bath often requires to be repeated several times, in order to ensure its efficacy. *It is contra-indicated* in several forms of disease, especially those of an hæmorrhagic or sanguineous tendency, and in cardiac disease generally, as well as in those in which much determination of blood to the head exists. But a little reflection is sufficient to guard an intelligent physician from an incautious, indiscriminate use of an agent of so powerful a character. (Dr. Wollaston.*)

2948. Blisters, or Vesicants, are defined by Dunglison as "substances which, when applied to the skin, irritate it and occasion a serous secretion, raising the epidermis, and inducing a vesicle." Many substances, as Plumbago Rosea, Euphorbium, Sinapis, &c., have been employed for this purpose. In England, Cantharides are generally employed; and in India, the Mylabris Chicorii: Cantharidin, in each of these cases, being the active principle. Boiling water is a speedy and powerful vesicant.

2949. *The objects for which they are employed* are fourfold: 1, to establish a degree of inflammation or irritation on the surface of the body, and thus to substitute a mild and easily-managed disease, for an internal and intractable one; on the principle, that two different sets of inflammation cannot be carried on in the system at the same time; 2, to stimulate the absorbents, and thus to cause the removal of effused fluids; 3, to act as derivatives; 4, to stimulate the whole system, and raise the vigour of the circulation.

2950. *Observations on their use.* 1. Never apply a blister at the beginning of inflammation; never in its acute stage; wait till this has been subdued by other means, bleeding, &c., and then it may be used with advantage. 2. Do not apply a blister where the skin is thin and tender, the scrotum or mamma, for example, as it causes intolerable irritation; nor over a bony prominence, as the process of healing will be slow and difficult. 3. In many instances, as in acute Laryngitis, it is inadvisable to apply a blister immediately over the seat of the disease, as it sometimes aggravates the symptoms, and prevents the application of leeches and other local measures which may be necessary. 4. A blister is often more efficacious if applied to a part far removed from the seat of disease, *e.g.*, to the heel in Sciatica and Lumbago. 5. Do not allow a blister to remain on for twelve or twenty-four hours, as is sometimes done, but at the end of

* Brit. Med. Journ., Oct. 27, 1860.

eight or nine hours remove the blister, and apply soft warm poultices. Vesication soon ensues. 6. Do not apply a blister to the chest or mamma during pregnancy.

2951. *To obviate the Strangury, &c., which arises from the use of Cantharides blister*, one of the following plans may be resorted to:—1. Remove the blister as soon as it causes decided pain, although the part be not vesicated, and apply simple dressings: free vesication subsequently occurs.* 2. Insert an extremely thin piece of paper between the blister and the skin. Sir B. Brodie† advises the paper to be oiled previously. 3. Let the patient drink plentifully of diluents and demulcents, avoiding those of an oleaginous description.

2952. *To obviate Gangrene Ulceration, &c., in infants and young children*, spread the plaster on fine soft linen or calico, smear with oil, and place it on the skin until redness be produced; then remove it and apply a soft warm poultice, and in two or three hours vesication will ensue. The serum being evacuated, dress the blistered surface with Ung. Cetacei, smoothly spread upon fine cotton. This is a point of importance, many cases of sloughing having resulted from coarse dressings. Thus employed, blisters may be used with perfect safety, even in the youngest children. (Thompson.‡) Another excellent and speedy method of applying blisters to young children, is to put on a mustard poultice until the skin is reddened, and immediately afterwards a blister. In an hour (it need never be continued longer) vesication will ensue. Dr. Graves § makes some practical observations on the subject of blisters on children and persons of a delicate skin, which are well worthy of attention. "In treating the Bronchitis of children and in the bronchial affections of fever, I have frequently," he observes, "directed *the blister to be left unopened*, and I can state, from experience, that this plan answers very well. The effused serum forms one of the best dressings for the excoriated surface of the skin, and the formation of troublesome sores is avoided. I have frequently," he continues, "had recourse to this mode of treating blistered surfaces in children, and in persons of irritable habit, in whom the cutis is extremely tender and vascular." He therefore advises, that in such persons the blisters should be left alone, particularly where they have been applied to the fore part of the chest, or to any other part exposed to pressure or friction. As soon as the blister rises, apply over it a piece of lint, smeared with spermaceti ointment, which can be renewed as occasion requires, and leave the rest to nature.

* Dr. Leaby, and Dr. Stokes, Cyc. Pract. Med., vol. i. p. 525.

† Lectures, Med. Times, vol. xvi. 1847.

‡ Lancet, April 18, 1846.

§ Clin. Lect., vol. i. p. 159.

2953. *Cautions and Contra-indications.* 1. Pregnancy. "Blisters," observes Dr. Dewees,* "are to be used with great caution with pregnant women; owing to the great excitability of their systems, they produce much pain during their operation, and this is not always followed by benefit." He states that, under these circumstances, he has seen entire retention of urine follow their use, and he thinks that, in two instances, they were the cause of premature labour. A case once fell under my own notice, in which abortion was apparently attributable to a blister applied to the throat for the relief of Aphonia. 2. Scurvy; here they are apt to produce gangrene. (Dr. Budd.†) 3. The first stage of acute inflammation.

2954. *Open or Perpetual Blisters.* It is often desirable to keep up a discharge from the blistered surface for many days, or even weeks, in succession: for this purpose, the Ung. Sabinæ is generally employed as a dressing; but there is reason to doubt the prudence of using this ointment, as Savin itself is a powerful irritant poison, and its use has been known to be followed by serious consequences, when thus applied. Some prefer dressing the surface with Cerat. Cantharid.; but the plan recommended by Sir B. Brodie is decidedly the best, viz., to apply a succession of blisters. After the second or third, they are productive of but little irritation. In employing any ointment with a view of keeping a blister open, it is necessary to vary the kind frequently, or the blister will heal in defiance of the remedies used. In many chronic diseases, issues or setons are preferable to perpetual blisters. (See Issues.)

2955. *Flying Blisters.* This is a term employed by Prof. Graves‡ to denote blisters which are allowed to remain on for two or three hours, and are then removed. The primary action of a blister is that of a local and general stimulant; its secondary, that of an evacuant and depressant. It is the first of these which it is desired to obtain from these "flying blisters." Dr. Graves speaks highly of their value in fevers, and in all cases in which the vital powers are greatly depressed; and adds, that the application of flying blisters over the region of the heart, the epigastrium, the inside of the legs and thighs, has been attended, in his practice, with the most striking benefit. They should on no account be left on long enough to produce vesication.

2956. *Therapeutic Uses. In ordinary cases of Inflammatory, Continued, or Remittent Fever*, blisters are rarely called for; but when the disease is complicated with inflammation of the lungs, heart, brain, or other important viscera, blisters prove of the highest service. In the advanced stages, also, when the vital

* Diseases of Females, p. 202.
† Lib. of Med., vol. v. p. 94.
‡ Clin. Lect., vol. i. p. 149.

powers are greatly depressed, the action of the heart feeble, and where there is much debility, flying blisters (*ante*) are stated by Prof. Graves* to restore, in a remarkable manner, the vital powers. *In Bilious, Remittent, or Yellow Fever*, a blister to the whole length of the spine, in a certain number of cases, allayed the irritability of the stomach in every case except one. It was also found useful when cerebral complications existed.† *In Typhus and Typhoid Fevers*, the great objection to the use of blisters is the danger of the blistered surface degenerating into troublesome or gangrenous sores. As a general rule, sinapisms and turpentine stupes are preferable. In the *Coma of these Fevers*, a blister to the scalp may, however, have the effect of arousing the patient.

2957. *Diseases of the Brain, Spine, &c. In Sanguineous Apoplexy*, very little benefit will accrue from blisters; but in *Serous Apoplexy*, which may be distinguished from the former by its comparative mildness, great advantage will often be obtained from the application of blisters to the calves of the legs, and sometimes to the nape of the neck. When a tendency to apoplexy exists, an open blister at the nape of the neck is often attended with the best effects; a seton or issue, however, is preferable.

2958. *In Insanity*, blisters are sometimes beneficial. The nape of the neck is the situation usually chosen; if, however, there is no unusual heat of the scalp, it is better to apply them over the vertex, or to cover at first the anterior, and afterwards the posterior part of the head, by a blister, which is to be speedily removed after the skin has become inflamed. This remedy is chiefly indicated in cases attended with stupor. (Dr. Prichard.‡) Under some circumstances, blisters to the extremities appear serviceable. (See also *Delirium*.)

2959. *In Delirium*, blisters have been advised to the head; but Dr. Copland justly observes that they have been used much too indiscriminately, and that he has seen them most injurious in this situation. Thus applied, they are only beneficial when the powers of life are sinking fast, and the delirium is attended by stupor, a cool head, and sunk and collapsed features, as in cases of low or adynamic fevers. When this affection is consequent upon febrile determination of blood to the head, blisters to the inside of the legs, &c., may be useful derivatives; but they often occasion so much pain and irritation in this situation as to thereby counteract, particularly in the turbulent state of delirium, any good they might otherwise produce. (Copland.§)

2960. *In Hydrocephalus*, the value of blisters has been the

* Op cit., vol. i. p. 159.
† Cyc. Pract. Med., vol. ii.
‡ Lib. of Med., vol ii. p. 134.
§ Dict. Pract. Med., vol. i. p. 496.

subject of much difference of opinion. In the acute stage, they appear to be prejudicial; but in the second stage, when the active inflammatory symptoms have subsided, much benefit will be derived from a blister at the nape of the neck, kept open for several weeks. Blisters to the extremities have been found serviceable by some practitioners. From the intimate relation which exists between the brain and the stomach, Gölis, an eminent German authority, was induced to place a blister over the latter region, and he states with the best effects. (Dr. Cheyne.*)

2961. *In Acute Inflammation of the Brain*, a blister should not be placed on the crown of the head, except when coma supervenes, as otherwise it appears often to aggravate the intensity of the symptoms. Applied, however, in succession, to the nape of the neck, it is a remedy of great value. Dr. Hope† considers that, in the advanced stages, blisters may be applied to the shaven scalp, not only with safety, but often with surprising advantage. Good effects sometimes result from their application to the extremities.

2962. *In Paralysis, Epilepsy, Chorea, and in some other Spinal and Nervous Affections*, blisters to the spine prove useful. They should be kept open for some time; but are, on the whole, inferior in efficacy to setons or issues.

2963. *Diseases of the Heart and Lungs. In Pericarditis*, Dr. Hope‡ speaks highly of relays of blisters over the region of the heart; and Dr. Watson§ observes, that when the pericardium is distended by effusion, he has seen the application of a large blister over the præcordial region followed by complete disappearance of the liquid. Its effects are often rapid and striking.

2964. *In Hypertrophy of the Heart*, Dr. Stokes‖ found the application of a blister very effectual in relieving the palpitations and præcordial distress. It is, of course, only a palliative measure.

2965. *In Pleuritis and Pleuritic Affections*, blisters in succession to the chest are often very effectual in causing the absorption of the effused fluids, and removing the disease. They are inadmissible during the acute inflammatory stage.

2966. *In Acute Bronchitis*, a blister is a valuable auxiliary to other treatment. Sensible relief of the cough and of the oppressed breathing often follows the rising of a large blister, laid across the front of the chest. (Watson.¶) *In Chronic Bronchitis*, or in that occurring in debilitated and old subjects, or when bleeding

* Cyc. Pract. Med., vol. ii. p. 471.
† Lib. of Med., vol. ii. p. 59.
‡ Diseases of the Heart, 3rd Ed.
§ Lectures, vol. ii. p. 301.
‖ Cyc. Pract. Med., vol. ii.
¶ Op. cit., vol. ii. p. 34.

is inadmissible, a blister may also be applied with advantage. *Obstinate Catarrhs* are often relieved by their use.

2967. *In Pneumonia*, when the acute stage is past, when the fever is no longer high, and the skin no longer burning, but the expectoration is still difficult, the dyspnœa considerable, and a sensation of pain or tightness or oppression is experienced in the chest, a large blister over the chest is often productive of very sensible relief; but it should be a *large* one. (Watson.*) In the acute stage, they are more productive of injury than good.

2968. *In Phthisis*, counter-irritation by small blisters proves often of the highest service in allaying the cough, dyspnœa, and general oppression of the chest. In some cases, Tartar Emetic ointment or Croton Oil liniment is preferable.

2969. *In Acute Laryngitis*, Dr. C. B. Williams† observes that, in the second stage, blisters to the upper part of the chest are very useful. An extemporaneous blister by Liq. Ammoniæ or Acetum Cantharidis should be preferred, on account of the rapidity of their action. In the early stage, blisters are of little use, and create much irritation. Dr. Porter‡ expresses himself strongly against their employment in the early stage, particularly if applied near the seat of disease. *In Chronic Laryngitis*, blisters to the upper part of the chest are useful, though perhaps less so than setons or issues.

2970. *In Hydropericardium, and in Hydrothorax*, the application of relays of blisters to the chest (in the former case over the margin of the left false ribs) is sometimes serviceable as an adjunct to other treatment, in promoting the absorption of the effused fluid. The blistered surface should be kept discharging for several weeks.

2971. *In Angina Pectoris*, relays of blisters have been advised by Percival and others. The best position for their application is between the shoulders, and they should be kept open for some weeks. They are, however, rarely employed at the present day, being much more unmanageable and less efficacious than counter-irritation by Tartar Emetic ointment, or by a seton or issue.

2972. *In Croup*, blisters have been much recommended by various writers. They are chiefly applicable in the second stage, after the employment of depletion and an emetic; and they should be applied between the shoulders, at the nape of the neck, or on the epigastrium, *but never to the throat;* in this last situation they are most objectionable, and will probably increase the severity of the symptoms.

2973. *In Cystitis and Inflammation of the Kidneys*, blisters

* Op. cit.
† Lib. of Med., vol. iii.
‡ Obs. on Diseases of the Larynx and Trachea.

were formerly considered to be contra-indicated, from the fear that the Cantharides would increase the irritation of the parts, and aggravate the symptoms. This they probably would do, if applied without proper precautions (*ante*); but if these be attended to, they may be used, not only with safety, but with advantage.

2974. *In Subacute Ovaritis*, Dr. Tilt* advises, after the application of leeches, the use of blisters (four or five inches long by three in breadth) over the ovarian regions. He directs the blister to be carefully camphorated, so as to guard against dysuria. The epidermis must not be removed from the skin, and the irritated surface should be healed as soon as possible.

2975. *In Dysmenorrhœa and Leucorrhœa*, Dr. Churchill† states that he has often derived great benefit from a blister applied to the sacrum, and either kept open or repeated. The value of blisters to the Cervix Uteri in the minor idiopathic *Affections of the Uterus and Ovaria* is shown by numerous cases cited by Dr. Johns.‡ The best and most speedy way of effecting this is by means of a strong solution of Cantharides applied by a camel's-hair pencil. An anodyne should be added to prevent pain. No unpleasant symptoms generally follow; cicatrization soon takes place. A speculum is necessary to bring the parts into full view. Care should be taken that the fluid does not extend beyond the parts.

2976. *In Hypertrophy of the Uterus*, blisters applied to the sacrum or inguinal regions often afford great relief, and promote reduction. (Dr. Oldham.§)

2977. *In Incontinence of Urine in Children*, when other remedies fail, a blister over the sacrum, repeated according to circumstances, often proves effectual.

2978. *In Gleet*, the application of blisters to the penis is strongly advised by Mr. Milton,‖ who considers that every gonorrhœa or gleet, however obstinate, may, if uncomplicated, be cured by blistering singly, or combined with the use of injection (Zinci Sulph. ʒj., Aq. Oj.). Before applying the blister, the hair at the root of the penis is to be cut off, a piece of paper is then to be fitted on the penis, and cut till it exactly covers it, from the root to within half an inch of the mouth of the urethra. This is then laid down on the blister, which is cut out by it, wrapped round the penis and fastened with threads. Care is necessary to prevent the ointment spreading to the scrotum. In mild cases, it may remain on an hour

* Obs. on Ovaritis, Lancet, March and April 1849.

† Midwifery, 3rd Ed., p. 61.

‡ Dub. Quart. Journ. of Med. Sci., May 1857.

§ Guy's Hosp. Reports, Oct. 1848.

‖ Med. Times, Sept. 20, 1851.

and a half, and the vesicated spots dressed with Zinc ointment; a T bandage should be worn.

2979. *Diseases of the Abdominal Viscera. In Acute Peritonitis and Enteritis*, blistering the abdomen, in the early stage, is inadvisable, as it interferes with the application of leeches, poultices, fomentations, and other local measures, from which unequivocal benefit is derived. Occasionally, however, in the advanced stages, particularly if effusion has taken place, blisters may be used with advantage.

2980. *In obstinate Subacute Diarrhœa*, a blister to the abdomen is sometimes effectual, when all other measures have failed. It may be used in conjunction with other remedies.

2981. *In the Collapse of Cholera*, flying blisters (*ante*) may be applied to the epigastrium, the region of the heart, &c. Occasionally they prove highly serviceable in reviving the patient, and restoring the vital energies, but they more frequently are of little avail. In some of the sequences of cholera, their efficacy is undoubted.

2982. *Vomiting, arising from functional or nervous disorder of the Stomach, and that, also, consequent on Fevers*, is often effectually relieved by a small blister over the epigastric region.

2983. *Regurgitation of Food.* When this is either purely nervous or neuralgic, Sir H. Marsh* found great benefit from small blisters, applied simultaneously to the pit of the stomach and to the spine. In some instances, this treatment was attended with speedy and permanent benefit; in others, the relief was only temporary.

2984. *Diseases of the Eye.* In many acute as well as chronic diseases of the eye, blisters are valuable auxiliaries to other treatment. They may be applied to the temples, behind the ears, or to the nape of the neck; the last position is the most favourable, as it does not interfere with the application of leeches, &c., in the immediate region of the diseased organ. In scrofulous affections of the eye, their use is generally contra-indicated. *In Amaurosis*, blisters are recommended by Travers, Laurence, and other high authorities. The temples, or the forehead above the eyebrow, are the best situations for them. *In Hemeralopia or Night Blindness*, Mr. Bampfield† states that the most efficacious treatment consists in a succession of small blisters (about an inch and a half in diameter) close to the external canthus of the eye. He states that this plan succeeded in every case of idiopathic Hemeralopia which he treated. *In purulent Ophthalmia*, blisters behind the ears often prove serviceable.

2985. *Diseases of the Skin. In Erysipelas*, it has been advised

* Dub. Journ., vol. xxiii. p. 452. † Med.-Chir. Trans., vol. v p. 47.

by Dupuytren,* and other French surgeons, to apply blisters to the inflamed surface, and they state that the best effects follow their application. Such a course appears dangerous, and in ordinary cases can never be necessary; when, however, as Mr. Liston† observes, the translation of erysipelas to any important part has taken place, blisters may be applied to the surface that it has left, or to any other in the neighbourhood, with a view of recalling the disease to its original and less dangerous situation. *In Herpes Zoster*, Mr. Plumbe found that the application of a blister over the part where the eruption should next appear, not only checked the extension of the disease, but produced a shrinking of the vesicles already formed, and served to cut short the progress of the disease. It should not be placed over the vesicles, gangrene having, in some cases, supervened upon so doing. (E. Wilson.‡) *In Ringworm*, Dr. Maclagan§ found a small blister over the affected part soon effected a cure. *In Acne Indurata*, blistering successive portions of the skin is advised by Biett.

2986. *Other Diseases.* *In Sciatica*, Dr. Fiorvante found blisters to the heel an effectual cure, in numerous cases. In my own practice, this treatment has proved most successful, more so than any other means with which I am acquainted.

2987. *In Tetanus*, it has been recommended to apply a blister to the whole length of the spine. In some cases it appears to have a beneficial effect; but, like all other remedies in this formidable disease, it very frequently fails, and it is objectionable on account of the irritation which it causes.

2988. *In Hydrarthrosis or Effusion in the Joints*, blisters are often strikingly beneficial, and will in some instances effect a cure without the aid of other remedies. A succession of blisters, conjoined with perfect rest of the part, should be enjoined. They are particularly useful in effusion into the knee-joints.

2989. *In non-union of Fractures, or where the union is tardy*, Sir B. Brodie‖ states that he has found a blister of great service. By promoting inflammation, not only of the skin, but of the deeper parts, it facilitates the union, lymph being poured out more freely. It only answers, however, in the superficial bones, and is of little comparative value in fractures of the femur.

2990. *Abscesses.* It has been proposed to apply blisters to abscesses, with a view of producing the absorption of pus. On this point Sir B. Brodie¶ observes, "I have blistered abscesses, and kept them open; but depend upon it pus is never absorbed,

* Clin. Chirurg., t. ii. p. 320.
† Elements of Surg., part i. p. 78.
‡ Dis. of the Skin, p. 210.
§ Med. Times, vol. xv. p. 218.
‖ Lectures, Med. Times, vol. xvi. 1847.
¶ Op. cit.

though serum is;" and he adds, that in those cases in which a tumour has appeared, and been supposed to contain pus, which has been removed by the application of blisters, there has been a mistake in diagnosis, and that no pus was present. In the case of *Indolent Bubo*, a blister sometimes appears useful.

2991. *In Arthritic Rheumatism*, Dr. Graves* speaks highly of the value of blisters. After the application of leeches to the painful part, when the local pain, swelling, and tenderness have been partially subdued by their means, and when leeching is no longer proper, certain and almost immediate benefit, he observes, may be obtained by blistering. Blisters, he adds, are better than leeches, not only because they possess the power of removing pain and swelling with more rapidity, but also because they do not leave the part in a weakened state; they have a powerful effect in removing these pains; and may be used in cases of Arthritis, where they have not been used heretofore.

2992. *In Otitis*, blisters behind the ears, stretching to the occiput, or on the nape of the neck, and either kept discharging or repeated, are often very serviceable. The same measures are often highly beneficial in *Deafness depending upon circumscribed Inflammation of the Auditory Passage and Membrana Tympani.* (Copland.)

2993. Blood-letting, the abstraction of blood from the system, either general or topical. The former includes venæsection and arteriotomy; and the latter, leeching, cupping, and scarification. It is to the first of these, or general blood-letting, that the following remarks principally refer.

2994. *The Objects for which Blood-letting is employed.*—1, to weaken the action of the heart, and the consequent force of the circulation; 2, to lessen the quantity of blood in the system; 3, to cause a derivation of blood from other parts to that whence the blood issues; 4, to promote absorption of medicines internally administered; 5, to impoverish the blood in the quantity of fibrin and globules. This point is best exemplified by the following table by Andral:—

	A strong man aged 23.	After the first bleeding.	After the second bleeding.	After the third bleeding.
Water	780·21	792·90	834·05	853·46
Globules and Fibrine	139·13	127·73	87·51	76·19
Albumen	80·66	70·21	71·11	70·35
Salts, &c.		9·16	7·33	
	1000·00	1000·00	1000·00	1000·00

* Clin. Lect., vol. i. p. 486.

2995. *Dangers of Blood-letting.* 1. Syncope. When disease of the heart exists, the sudden abstraction of a large quantity of blood has been followed by fatal syncope, from the pressure of the effused fluid on the surface of the heart being subjected to sudden and great diminution. 2. Anæmia. This is principally to be dreaded in women, and persons of debilitated constitutions, whose vital powers are insufficient to replace the red globules of the blood, and restore it to its normal condition. 3. Disease of the heart. Repeated large bleedings have been shown to produce this effect. 4. Excessive hæmorrhage. 5. Dropsy; this is rare. 6. An increased susceptibility of the surface of the body to the influence of cold, and, therefore, the liability to relapse, or to the excitement of fresh inflammatory disease. (Alison.*) 7. Polypus of the heart. Dr. Hope† states that he has distinctly observed this sequence, when blood-letting has been extensively employed in organic disease of the heart.

2996. *Axioms of Blood-letting.*

1. For ordinary cases, the veins at the bend of the elbow, the basilic or median-basilic, are generally preferred; but the jugular vein in children, and the temporal artery in adults, are preferable in some cerebral affections, and the veins of the foot in apoplexy, &c.

2. The very young, the old, and the feeble do not bear blood-letting so well as those in youth or middle life.

3. Inhabitants of large cities bear blood-letting badly, compared with country people whose occupations are chiefly out-door.

4. Persons predisposed to Phthisis, Scrofula, and Scurvy, bear the abstraction of blood badly.

5. Very fat persons will seldom bear any great loss of blood; fatal syncope has followed the abstraction of even small quantities in these cases.

6. In persons affected with chronic disease of the heart, valves, or large vessels, the sudden abstraction of a large quantity of blood has been followed by fatal consequences.

7. Except under pressing circumstances, never bleed a woman whilst menstruating.

8. Never bleed an hysterical woman, however severe the attack *may appear*, until antispasmodics, opium, the cold douche, &c., have been previously employed.

9. Bleed cautiously an habitual drunkard, or a person habituated to much spirituous or vinous liquors; delirium tremens, and other serious nervous affections, have followed a full and rapid abstraction of blood in such cases.

* Outlines of Pathology, p. 231. † On Diseases of the Heart, p. 532.

10. Bleed cautiously a long resident in a tropical country.

11. Repeated blood-lettings are highly objectionable, inasmuch as they tend to produce disease of the heart, and great nervous derangement.

12. In chronic diseases, blood should be drawn chronically; that is, in small quantities, whilst the patient is in the recumbent posture. Topical blood-letting is generally preferable in these cases.

13. Larger bleedings are required in inflammation of serous membranes than in that of mucous surfaces, or in that of the parenchyma or substance of an organ.

14. A moderate loss of blood at the commencement of an inflammation is more effectual than a much larger one at an advanced period of the disease. When inflammation clearly exists, you cannot bleed too early. This particularly applies to tropical diseases.

15. Never bleed in anticipation of an attack of inflammation; wait till it manifests itself. (Travers.)

16. Never continue the use of the lancet until the blood ceases to exhibit signs of inflammation. Remember that there is a line beyond which the practice becomes destructive instead of remedial. (Travers.)

17. Make the character of the pulse, its hardness or softness, your guide, in preference to its quickness, which is a most fallacious guide. The pulse in Phrenitis is slower than natural, and rises under the abstraction of blood; the small contracted wiry pulse of Peritonitis becomes stronger and fuller; and the pulse of parenchymatous inflammation becomes, under the same circumstances, lower and weaker.

18. The feelings of the patient are a good guide for the regulation of the quantity to be abstracted. Relief of pain, and a feeling of faintness, are indications that sufficient has been drawn.

19. If the blood flows slowly, and in a small stream at first, and afterwards more freely and abundantly, it is an indication for allowing the blood to flow on.

20. In acute inflammation abstract blood from a large orifice, the patient being placed in an upright position. A few ounces thus taken are more effectual than three times the quantity taken slowly, whilst the patient is in a recumbent posture.

21. Place but little reliance on the cupped and buffed appearance of the blood, as a sign of inflammation; extraneous circumstances often induce this appearance.

22. If the quantity of crassamentum be very small compared with that of the serum, it may, in the majority of cases, be looked upon as a contra-indication to further blood-letting.

23. In very acute inflammation of important viscera, it is advisable to join topical with general bleeding.

24. In any case of acute inflammation, if we place the patient upright, and bleed to incipient syncope, we abstract precisely the quantity of blood which the patient will bear, and which the disease requires to be drawn. (Marshall Hall.)

25. The colour of the blood should be carefully observed: if it present the proper venous hue, or, if previously livid, it become less so during its abstraction, and assume a natural colour, it is indicative of the propriety of blood-letting in that case.

26. Blood-letting should not be adopted in any disease when a tendency to typhus evidences itself.

27. The tolerance of blood-letting varies remarkably in certain diseases; so much so, that Dr. Marshall Hall suggests a scale, showing those in which this tolerance is either augmented or diminished, compared with the system in health. "It would begin," he says, "with congestion of the head or tendency to apoplexy; inflammation of serous membranes, and of the parenchymatous substance of various organs, would follow; then acute anasarca, and, lastly, inflammation of the mucous membranes. This part of the scale would be divided from the next by the condition of the system in health. Below this would be arranged fever, the effects of intestinal irritation, some cases of delirium, reaction from loss of blood, and disorders of the same class with Dyspepsia, Chlorosis, and Cholera Morbus." He assumes the degree of tolerance of blood-letting in health to be 15 oz.

Contra-indications. 1. Advanced stages of typhus and typhoid fevers. 2. Anæmia. 3. Chlorosis. 4. Phagedenic ulceration and gangrene. 5. Some forms of atonic Dyspepsia.

2997. *Therapeutic Uses. In Acute Inflammation, especially of Serous Membranes*, the practice of general blood-letting, advocated in the first edition of this work (1854), has undergone considerable modification, and it is now generally admitted that the indiscriminate and repeated use of the lancet not only fails to "cut short an inflammation," as was formerly thought it could, but that the practice is, on the whole, not only useless, but injurious. Various explanations have been offered to account for this change of practice. By one class it has been affirmed that of late years there has been a change in the type of inflammatory disease, the present type having assumed a more asthenic character than that which formerly prevailed. The subject has been ably reviewed in all its bearings by Dr. Markham,* in his Gulstonian Lectures for 1864; and he adduces evidence to show that the change of practice is due, not to any change of type in disease, but to our better scientific knowledge, to advances in animal chemistry and physiology, and partly to the observation

* British Med. Journ., April, May, and June 1864.

of the ill effects of blood-letting, as practised in the early part of the present century. In perusing the statements of those who condemn blood-letting, it should be remembered that their observations have almost invariably been made in the hospitals of large cities, where the inhabitants, especially that class who apply to hospitals for relief, are already debilitated by residence in overcrowded, ill-ventilated apartments, with the further depressing concomitants of bad and scanty food, and insufficient clothing; and it may admit of a question, how far conclusions drawn from this class are applicable to strong, plethoric residents in country districts who have been subjected to none of those debilitating influences which must always, more or less, bear upon the inhabitants of large towns. That blood-letting is a remedy of great power, for good or evil, as it is judiciously or injudiciously employed,—that by its aid we can reduce the force and frequency of the heart and circulation more certainly and speedily than by any other one single measure,—that by it we can, as shown by Andral (*ante*), alter the composition of the blood, reducing to a minimum the amount of fibrine and globules in the circulating fluid,—that by its aid we can often afford immediate relief to urgent symptoms, as in great obstructions of the respiratory and circulatory systems,—that it is capable of effecting these ends, there can be no doubt; and it is to be feared, with the prejudice which at present exists against blood-letting, there is danger of going to the other extreme, and of too much neglecting, if not altogether abandoning a remedial measure which, applied judiciously in proper cases, may be productive of the best effects. Taking Dr. Markham as the exponent of the most recent views on this subject, we shall cite a few short passages from his admirable Gulstonian Lectures, already quoted. "Venæsection," he remarks, "is not a remedy for inflammation, but a remedy for the accidents which accompany or rather arise out of certain inflammations and non-inflammatory diseases,—viz., those inflammations and diseases which are accompanied with obstructions of the cardiac and pulmonary functions. It is, therefore, of service only in those inflammations which are attended with such obstructions." "*In local Inflammations*, the direct abstraction of blood (by leeches, &c.) acts immediately upon the seat of inflammation; its benefits are sure and immediate also, and, as usually practised, its influence over the system generally is scarcely perceptible. Venæsection, on the other hand, has no such influence over the local inflammation, but a very powerful one over the system at large. It acts only through the influence which it exercises indirectly over the inflammation. The good effects of direct abstraction of blood are positive and manifest, and admitted by all, and they are obtained at a small cost to the system at large." "In all those cases of *internal Inflam-*

mations in which there is a direct capillary connection between the skin and internal inflamed part (this applies to *Pleuritis*, *Peritonitis*, &c.), the local abstraction of blood (by leeches, &c.) is of manifest service, just as we see it to be in external inflammations; but in all those inflammations in which there is no such capillary communication, the benefits of the local abstraction of blood are neither so clear nor positively ascertained." Still, even in these latter cases, local blood-letting is often found of service, and it may very fairly be suggested whether any good effected by leeches, &c., and local irritation of the skin over these internal inflammations, may not be ascribed to the excitement of the reflex action of the vaso-motor nerves producing contraction of the inflamed capillaries." For a further detail of these views, and the practice which results from them, the reader cannot do better than consult for himself Dr. Markham's Gulstonian Lectures.

2998. *Fever.* The change in practice which we have just noticed, with regard to Inflammation, has extended itself to Fevers; and blood-letting is now, comparatively speaking, rarely resorted to, unless some peculiar and urgent symptoms demand its employment. The *circumstances* more especially requiring recourse to vascular depletions, may be summed up as follows:—*a*, inordinate excitement or irritation, with rigidity of fibre, and general increase of the animal heat; *b*, when the patient is robust, plethoric, or young, the sanguiferous system being so surcharged as to prevent the free exercise of the functions; *c*, when the general reaction of the vascular system is such as to endanger vital parts, or too strong to allow a salutary or critical change, or so vehement or tumultuous as quickly to exhaust vital power; and *d*, when the blood is determined to, or vascular action is inordinately increased in, an important organ. In these *conditions* blood-letting is employed with the following intentions:—*α*, to remove the excitement and irritation, and relax the exhaling and secreting surfaces and organs; *β*, to diminish the load which oppresses the vascular system, congests it, or overpowers the organic nervous influence that actuates it; *γ*, to reduce the excessive reaction, and thereby to guard important viscera, to prevent consequent exhaustion, and to favour the supervention of salutary evacuations; *δ*, to remove or divert the increased impulse or action from important organs. (Copland.*)

2999. *In the Continued Fevers of Temperate Climates*, the practice of blood-letting, once so much in vogue, has been almost entirely abandoned. Most modern physicians, observes Dr. Murchison,† would regard such a practice, in the treatment of

* Dict. Pract. Med., vol. i. p. 924. † On Fevers, &c., Ed. 1862, p. 255.

Typhus Fever, as almost fatal. Modern observation has shown that the effect of blood-letting, in Typhus, is to increase the mortality; while, even in the patients who recover after it, the nervous symptoms occur sooner, and with greater intensity, and are of longer duration; the eruption is darker and more copious, and convalescence is greatly retarded. *In Typhoid (Enteric) Fever*, the practice of blood-letting is still pursued, in some parts of the Continent; but it has never obtained favour in this country, nor is it a plan of treatment justified by the results obtained. Some, however, think much advantage is derived from leeches for the relief of the abdominal symptoms. Dr. Murchison* states that, in several cases, at an early stage, he has applied leeches both to the abdomen and round the anus, and that he has usually found them afford marked relief to the pain, and sometimes cause subsidence of diarrhœa. At the same time, he observes, he has often seen equal relief from the constant application of poultices and warm fomentations; so much so, that he is inclined to believe that the good effects of the leeches are, in a great measure, due to the fomentations which succeed them. *In the Relapsing or Famine Fever* at Edinburgh, in 1817-19, wonderfully good effects were said to have followed venæsection; but in the epidemic of 1843 it was tried in several instances, but was almost universally repudiated as worse than useless. (Murchison.†) *In the Ardent Continued Fevers of Tropical Countries*, occurring in strong, robust Europeans recently arrived from temperate climates, a full blood-letting at the outset is a measure generally fraught with great advantage. Blood-letting may be practised to the extent of allaying the vascular disturbance, relieving the pain in the head, and reducing the temperature of the body. These, observes Sir R. Martin, are the tests and proof that the operation has been successful. In natives of the Tropics, generally, venæsection is wholly inadmissible.

3000. *In the Remittent Fevers of India and the Tropics generally*, blood-letting is an expedient and useful measure, sometimes a very necessary one, in reducing the high vascular excitement of the early exacerbations in sthenic and lately arrived Europeans, as well as in lesser degrees of excitement, when in this state of constitution and stage of fever there co-exists considerable determination of blood to important vital organs. The extent to which blood-letting should be carried, in suitable cases, is a point on which the physician must exercise his discretion; keeping in view the ultimate advantage of effecting the indication aimed at, with as little loss of blood as practicable, and recollecting that the judicious removal of sources of irritation, the adoption of free

* Op. cit., p. 567.

† Op. cit., p. 378.

ventilation, the well-timed use of emetics, cold affusion, tepid sponging, and antimonials, are all measures of considerable influence in lowering febrile excitement, which it is of essential consequence to employ with assiduity, in order to lessen the necessity of large evacuations. In the treatment of Remittent Fever in Europeans some time resident in India, and in all classes of the native community, general blood-letting is, with few exceptions, an unnecessary and often injurious proceeding. In all cases it is to be borne in mind—1. That, in the great majority of instances, the danger in Remittent Fever consists in prostration of the vital actions of the heart and nervous system. 2. That not only exhaustion, but also the protraction, of the disease, is favoured by needless and undue evacuations. 3. That evacuant means used in the exacerbation have no power in shortening the duration of the attack. (Dr. Morehead.*) *In Bilious Remittent and Yellow Fever*, we must be guided by the same general principles as we have above cited from Dr. Morehead's valuable work.

3001. *Intermittent Fevers*, uncomplicated with cerebral affections, or with inflammation of some important viscera, rarely, if ever, require the use of the lancet; when, however, these complications are either present originally, or arise during the progress of the attack, abstraction of blood is indicated, but this may often be equally, if not more advantageously, effected by leeches or cupping than by general blood-letting. The practice originally proposed by Dr. Mackintosh, of bleeding in the cold stage, has met with supporters in Twining and other good authorities; but, on the other hand, it has been found repeatedly to fail, and has now justly been abandoned.

3002. *In Small-pox, Measles, and Exanthemata generally*, when uncomplicated, no necessity whatever exists for the use of the lancet. An airy room, mild diaphoretics, an occasional aperient, and sponging the body with cold or tepid vinegar and water, is generally sufficient. When complications, especially of the lungs, supervene, the question of blood-letting arises; but, in the majority of cases, all that is required is better effected by leeches than by the lancet. *In Scarlatina Anginosa*, leeching the throat often affords great local relief.

3003. *In Puerperal Fever, Puerperal Peritonitis*, &c., it is difficult to form a correct estimate of the value of blood-letting, as its applicability, or indeed its admissibility, depends upon the peculiar character of the epidemic, and the state of the patient: in some cases it has proved the sheet anchor, whilst in others it has appeared useless, if not decidedly injurious. For many years past, observes Dr. Churchill,† it has been found

* Dis. of India, 1860, p. 123. † Midwifery, p. 588.

either inadmissible or injurious in the cases we have had in Dublin. The type of the disease, and the state of the patient, not only prohibited the use of the lancet, but indicated very clearly the necessity of a line of treatment very different, if not the opposite. In all cases, moreover, when bleeding is admissible, the period of its beneficial use is very limited: after the first twelve or twenty-four hours, little benefit appears to accrue from it. Having premised thus much, we may mention the treatment which ordinarily has proved successful. If the pulse be firm, a large quantity of blood may be taken from the arm. Dr. Gordon recommends from twenty to twenty-four ounces at the beginning, and repeated, if necessary. Dr. Ashwell considers Dr. M. Hall's method of placing the patient upright, and bleeding to incipient syncope, of great value in puerperal Peritonitis. Should any circumstances forbid a repetition of the venæsection, a number of leeches (from sixty to a hundred—*Campbell*) may be applied to the abdomen; and when these fall off, the abdomen should be fomented, or covered with a light bran poultice. The fomentation or poultice may be repeated, at intervals, as it has a very soothing effect. After this, Mercury, Opium, and Antimony, variously combined, form appropriate internal remedies. (Churchill.)

3004. *Cerebral Affections. Acute Inflammation of the Brain and its Membranes* requires to be treated on the general principles laid down in Inflammation. Blood-letting is only applicable to the early stage of the disease, occurring in robust plethoric individuals, and the extent to which it should be carried must be left to the judgment of the physician and the circumstances of the case. *In Subacute and Chronic Diseases of the Brain*, Dr. Holland * justly condemns the indiscriminate and general use of blood-letting, especially in the different forms of *Paralysis*. He prefers the abstraction of blood by leeches, from the hæmorrhoidal vessels. Dr. Griffin † also cautions the practitioner against large bleedings in diseases of the brain, for the following reasons:—1. Because symptoms are no certain tests of the amount of disease, and we may produce a degree of debility which cannot be contended with. 2. Because in all cases in which extensive diseases of the brain are suspected or known to exist, besides the immediate danger, they produce a degree of debility which would interfere with the process of reparation. 3. Because in all cases of disease of the brain, attended with severe and protracted pain, the patients usually die, not from any mechanical effect of an existing inflammation, but from the exhaustion produced by the pain that accompanies it. Under these circumstances, he prefers taking blood away in moderate quantities, watching the progress

* Med. Notes and Reflections. † Med. Problems.

and symptoms of the case, and being guided entirely by them. *In Delirium*, attended by high vascular action, a hot dry skin, a flushed countenance, a full bounding pulse, particularly if it occur in a young and robust subject, blood-letting is indicated. It is inadmissible in all cases when there is much prostration of the vital powers; Camphor, Musk, and sedatives being then required.

3005. *In Insolation, Coup de Soleil*, blood-letting was formerly much employed; but, from the mortality which attended this treatment, in the hands of Dr. Russell and others, it has fallen into comparative disuse. Dr. Morehead,* indeed, goes so far as to say, that he "should have no hesitation in altogether interdicting this proceeding in the treatment of sun-stroke." This is, perhaps, rather too sweeping a direction; but it is certain, that except in young plethoric constitutions, and where vascular action runs high, by far the most successful treatment consists in cold affusion to the head, throat, chest, spine, and epigastrium, the application of ice to the spine, stimulants internally (Ammonia, Ether, weak Brandy and water), and frictions of the surface. In the stage of reaction, leeches to the temples or cupping at the nape of the neck may be required.

3006. *In Apoplexy*, it was formerly the routine practice to bleed copiously; indeed, such treatment was considered the only one which afforded a chance of recovery. The error of this opinion and practice has been fully shown by Drs. Copland, Holland, Watson, Burrows, Marshall Hughes, Copeman, &c.; and it is now generally admitted that this treatment is far from applicable to a large portion of apoplectic seizures. To Mr. Copeman† the profession is indebted for much valuable information on this subject. *The contra-indications of bleeding in Apoplexy*, he observes, are—"when the patient is sixty years of age and upwards; when the pulse is feeble, very frequent, intermitting, slow, or large, and inclined to double beat; when the respiration is laboured, and accompanied with *cold* perspiration; when there is great mobility of the nervous system, with weak muscles, whether the body be thin or corpulent; when the attack comes on soon after a full meal, or after great mental or bodily fatigue. Whenever the pulse has a double beat, the case is best relieved by diffusible stimulants. In all these cases bleeding is unnecessary or prejudicial, generally." *The indications for bleeding* are a quick, wiry, resisting pulse, flushed countenance, warm perspirations, noisy breathing, and a tendency to spasmodic, muscular contraction, occurring in persons of an earlier age than sixty. These circumstances seem to point out the necessity for resorting to the abstraction of blood; but Mr. Copeman adds,

* Diseases of India, p. 621. † On Apoplexy, p. 198.

"that there will be less danger in not bleeding in any case, than in always having recourse to it, where there are *some* of the circumstances indicative of the propriety of its employment."

3007. *Diseases of the Heart. In Acute Inflammation of the Heart and its Membranes*, blood-letting was formerly regarded as indispensable; but the practice in this, as in other acute inflammations, has undergone considerable modifications. Dr. Taylor,* after extensive experience, draws the following deductions as to the value of blood-letting in Pericarditis:—

1. The duration of Pericarditis increases in proportion as the time is longer between the commencement of the disease and the first bleeding. 2. The duration of cases bled after the first four days is greater by one-half than of those bled within the first four days from the invasion of the disease. 3. The influence of bleeding is more marked in cases in which it is copiously and repeatedly, as well as early, practised, than in those in which blood is drawn less frequently, and more sparingly. 4. Pericarditis is never extinguished by one bleeding, however early, or however copiously practised. 5. Occasionally Pericarditis is suspended for a limited time, the suspension, in every instance, being immediately consequent upon the local abstraction of blood. 6. It is probable that renal has a longer duration than rheumatic Pericarditis. 7. Blood-letting must be less copious, and is more frequently inadmissible, in renal than in rheumatic Pericarditis. 8. Blood-letting probably lessens the mortality, inasmuch as it lessens the duration of Pericarditis. 9. The abstraction of blood by venæsection, cupping, or leeches, almost invariably relieves the pain at once, but not permanently. There is no reason to suppose that any one form of bleeding relieves pain more effectually than another. 10. Blood-letting never lessens the frequency of the pulse, except when there are signs of the inflammation having abated. 11. The tendency to syncope in some cases of Pericarditis renders it necessary to be very careful in abstracting blood by venæsection. 12. Free venæsection for Pericarditis does not always prevent the subsequent appearance of serious inflammation in other internal organs.

3008. *Diseases of the Lungs and Throat.* In treating of Inflammation generally (*ante*), we have seen that amongst the cases in which the utility of blood-letting, general or local, is still recognised, are those in which obstructions of an inflammatory or non-inflammatory nature are present: hence in *Pleuritis* and *Pneumonia*, and in a minor degree in *Acute Bronchitis*, depletion by the lancet or leeches and cupping may be productive of benefit; but care is necessary in the selection of cases, especially in large cities where danger of inducing an adynamic state is ever to be

* Med. Gaz., July 20, 1849.

borne in mind. Where a doubt exists, local depletion should be preferred to general blood-letting. With regard to *Pneumonia*, Dr. Bennett* gives the following judicious directions:—"If we are called," he says, "to a case at a very early period, before exudation is poured out, and before dulness, as its physical sign, is characterised, but when, notwithstanding, there have been rigors, embarrassment of respiration, more or less pain in the side, and commencing crepitation, then bleeding will often cut the disease short. This state of matters is rarely seen in public hospitals. When, on the other hand, there is perfect dulness over the lung, increased vocal resonance, and rusty sputum, then exudation blocks up the air-cells, and can only be got rid of by that exudation being transformed into pus, and excreted by the natural passages. In such a case, bleeding checks the vital powers necessary for these transformations, and, as a general rule, if the disease be not fatal, will delay the recovery. "I believe," he adds, "this to be the cause of so much mortality from Pneumonia in hospitals, where bleeding is largely practised; for, in general, individuals affected do not enter until the third or fourth day, when the lung is already hepatized." *In the Pneumonia of Children*, venæsection has been advised, particularly by Mauthner,† of Vienna, who advises its vigorous employment at an early stage, and even in the advanced stages. Excepting in the first stage, however, it is not usually regarded either as safe or expedient; and even then, abstraction of blood by leeches is preferable to general blood-letting.

3009. *In Acute Laryngitis*, if blood-letting is to be advantageous, it must be employed early and copiously. "When," observes Dr. Watson,‡ "there is high inflammatory fever present, and the skin is hot, the pulse firm and full, the cheeks red, and the lips florid, you may bleed your patient with decision and advantage. But if his powers are beginning to sink under the poisonous influence of imperfectly aërated blood, if his skin be cold or even cool, his face pale or leaden, his lips blue, his pulse small and feeble, his mind wavering, you will do no good by blood-letting; nay, you will increase the debility which already exists, and hasten the fatal catastrophe." Leeches or blisters *to the throat* are objectionable; cupping at the nape of the neck may sometimes be useful. If these and other remedies fail, tracheotomy must be employed, in order to save the patient's life.

3010. *In Croup*, bleeding may be employed when the patient is strong and plethoric, and is seen at the outset of the disease. Abstraction of blood by venæsection or cupping, in the case

* Edin. Monthly Journ., Aug. 1850.
† Ibid., Feb. 1850.
‡ Lectures, vol. i. p. 816.

of older children, and by leeches in the case of infants, should be practised whenever the symptoms are violent, and there is much fever, and the patient is seen within a few hours after the commencement of the symptoms. The relief which is given by this measure, under such circumstances, is often so decided that no doubt can remain of its usefulness and propriety. (Dr. Watson *) Dr. Copland,† however, thinks, with the majority of medical men, that blood-letting, by cupping between the shoulders, or at the nape of the neck, or leeches to the top of the sternum, is preferable to venæsection; and he states that the loss of little more than an ounce or an ounce and a half for each year of the patient's age can well be borne, whilst nausea is kept up by an emetic previously administered.

3011. *Diseases of the Abdominal Viscera. Acute Peritonitis, Enteritis, and other Abdominal Inflammations*, should, in accordance with modern views, be treated on the general principles laid down when treating of Inflammation. In strong, robust individuals, when the symptoms are urgent, a full blood-letting may be necessary; but, under other circumstances, local depletion by leeches, followed by fomentations, poultices, and the free use of Opium internally, is often sufficient to control the disease and bring it to a favourable termination.

3012. *In Acute Inflammatory Dysentery*, in the first or inflammatory stage, venæsection has the sanction of Annesley, Twining, Johnson, Martin, Morehead, and our best authorities, both in former and present times. To be serviceable, however, it must be had recourse to early, before ulceration has become established. In young plethoric Europeans whose constitutions are unimpaired by length of residence in tropical countries, or by other causes, especially intemperance, blood-letting may be resorted to not only without fear, but with positive advantage; in others, however, who present a converse state, or whose symptoms present anything of an adynamic form of the disease, or where the symptoms have persisted for several days unchecked, local depletion by leeches over the colon or cœcum, or to the verge of the anus, should be substituted. In all cases it must be regarded as an auxiliary to other measures, and not trusted to alone. It is inadmissible in the scorbutic and cachectic forms of the disease, and in the Dysentery of the natives. *In severe Ileus*, blood-letting has been advised, but it will generally yield to full opiates, with carminatives, warm water enemas, the hot bath, &c. *In the passage of Renal or Biliary Calculi, and in some obstinate Spasmodic Affections of the Stomach and Bowels*, which resist the employment of Opium and the hot bath, the rapid abstraction of blood sometimes affords immediate relief.

* Lectures, vol. i. p. 840. † Dict. Pract. Med., vol. i.

In the passage of Biliary Calculi, however, Dr. Thudichum regards blood-letting as useless.

3013. *In Cholera*, some practitioners commence with blood-letting, with the view of relieving existing congestions, but the propriety of this measure is very doubtful. A reference to the table showing the ratio of deaths under several lines of treatment (sect. 1414) points out that the percentage under blood-letting, when it has been used in conjunction with Calomel and Opium, is 59 per cent., which, though less than under Calomel and Opium alone, or under that of stimulants, is very high when compared with that of salines, ice, &c. It is said that Broussais, the great advocate for blood-letting, renounced his faith in it in the treatment of Cholera; and most practitioners abandon it, if, upon theoretical grounds, they have been induced to adopt it. Dr. Sutherland observes that the effects of bleeding in Cholera are very uncertain. In Edinburgh, in 1832, a patient was bled and recovered, but in the next 39 cases in which it was employed they *all* died. In the epidemic of 1848 it was again extensively employed in Edinburgh: out of 12 selected cases 11 recovered, who were bled; and in one gentleman's practice, 4 out of 5 recovered under the abstraction of blood. Dr. Sutherland, however, justly adds that the treatment which is curative one week will often prove useless in the next. (Mr. Ross.*)

3014. *In Acute Hepatitis*, a full blood-letting at the outset is often invaluable in reducing the inflammatory action. The extent to which it should be carried it is difficult to define, as each individual case may require some modifications; but Sir R. Martin supplies us with a good criterion by which we may judge of its having been carried to the required extent, viz., "a sense of local and general relief, with softening of the skin." *The indications for blood-letting in Hepatitis* are,—1, An early stage of the disease; 2, a first attack of the disease; 3, a short residence in tropical countries; 4, youth, and a robust plethoric habit of body; 5, a dry open locality, in contradistinction to low, damp, malarious sites, or over-crowded cities; 6, the existence of much constitutional disturbance, accompanied by a hot dry skin, full strong pulse, white dry tongue, and acute pain in the right hypochondrium, whether attended by tumefaction or not; 7, complications with Pleuritis, Pneumonia, or Remittent Fever. *The Contra-indications, or Cases in which blood-letting should be used cautiously and sparingly*, are—1, Advanced stages of the disease; 2, long residence in the Tropics; 3, intemperate habits, confirmed drunkenness, or constitutions broken down by previous disease, long courses of Mercury, &c.; 4, Cachexia of any description; 5, a damp, malariously situated locality; 6, a case of relapse;

* Lectures on Cholera, Med. Times, vol. xix. p. 107.

and, 7, any indications of suppuration. *Chronic Affections of the Liver* are best treated by local depletion: general blood-letting is rarely, if ever, required. Leeches to the verge of the anus are often of the greatest service, by directly unloading the portal venous system.

3015. *Diseases of the Genito-urinary Organs. In Acute Nephritis*, leeches, or cupping over the loins, followed by the free use of opiates, diluents, and demulcents, with rest and an antiphlogistic regimen, often suffice, without venæsection. *In Cystitis*, leeches over the pubes, and to the verge of the anus, opiate enemas, hot baths, demulcents, &c., are usually sufficient, without any extensive general blood-letting. *In Acute Metritis*, local or general blood-letting, and other antiphlogistic measures, are indicated, as in the preceding cases. When these diseases assume a *chronic* form, or are of a *subacute* character, cupping on the loins will generally prove sufficient.

3016. *Diseases of the Eye. In all cases of Inflammation of the Structures of the Eye*, including under this head, *Iritis*, *Conjunctivitis*, *Retinitis*, *Sclerotitis*, *Inflammation of the Capsule of the Crystalline Lens*, *Inflammatory Amaurosis*, *and Purulent and Gonorrhœal Ophthalmia*, bleeding, both local and general, was formerly regarded as an essential part of successful treatment; but it is now admitted that the cases requiring general blood-letting are very limited. If the inflammation be extensive and intense, if the constitution sympathise, and there be a hot, dry skin, full pulse, and general febrile action, and if, in addition to this, the patient be strong and robust, general bleeding may be employed with safety and advantage. If, on the other hand, the local inflammation be not of a very severe description; if the skin be cool, the pulse quiet and soft, and the febrile action slight; and if, moreover, the patient be old and debilitated, or if the constitution present the scrofulous diathesis strongly marked, the local abstraction of blood, by leeching and cupping on the temples, should be employed in preference. A strict antiphlogistic diet, with Calomel, Belladonna, &c., are the other measures indicated. The old plan of bleeding to the extent of 90 or even 100 oz. is now very properly abandoned.

3017. *Acute Rheumatism.* From the time of Sydenham, who was a strong advocate for blood-letting in this disease, up to a recent period, it has been considered not only a rational, but a necessary and successful mode of treating Acute Rheumatism, to abstract blood at the outset of the attack, and even to repeat it when the pain was great, and the inflammatory symptoms of a severe character. Drs. Barlow,* Budd,† Hope,‡ Watson,§ &c.,

* Cyc. Pract. Med., vol. iii.
† Lib. of Med., vol. v. p. 200.
‡ On Diseases of the Heart, 3rd Ed., p. 179.
§ Lectures, vol. ii. p. 678.

have employed and recommended its use. Dr. R. B. Todd,* however, was one of the first who raised objections to its employment. He stated that it was fraught with the most dangerous consequences, that it was most uncertain in its effects, that it increased the danger of internal effusions, that it predisposed to Endocarditis and Pericarditis, that violent delirium more frequently attended its employment, and that it very much increased the tendency to the chronic state. Although, it appears to me, the ill effects attributed by Dr. Todd to the practice of blood-letting in Acute Rheumatism are too highly coloured, yet it is certain that its indiscriminate use, as formerly in vogue, has been the cause of much mischief in certain cases. As in other instances, much discretion is necessary in the selection of cases in which it is applicable.

3018. *In Hydrophobia*, blood-letting has been extensively employed, but with very doubtful success. It is recommended by Mead, Boerhaave, Fothergill, Nugent, Ferriar, Innes, Shoolbred, and others; but cases in which it was fairly tried and signally failed, are related by Rutherford, Troillet, Parry, and Bosquillon. Although occasionally useful, no dependence should be placed upon it as a remedy. Dr. Bennett,† however, observes, that from the published results of this plan of treatment, when employed at an early stage of this disease, it appears to be more beneficial than any other; and in certain cases, where the vascular excitement is much increased and the constitution robust, it may be adopted with every hope of success.

3019. *In Tetanus*, in the earliest stage, when the patient is of a full habit, the wound swollen, inflamed, and painful, Dr. Dickson‡ recommends a full blood-letting, with purgatives and other antiphlogistic remedies, as the means the best calculated to allay the general and local irritation. During the Peninsular War it was extensively employed, and Sir James M'Grigor§ states that, in some cases, it was productive of decidedly good effect. Bleeding, however, should not be carried to any great extent, more relief having been derived from cupping along the course of the spine. It is more useful in idiopathic than in traumatic Tetanus; but even in these, it is only applicable in the earliest stage. Sir Astley Cooper‖ regarded it as hurtful. It appears to be in every respect inferior to Chloroform or Cannabis. Cases successfully treated by copious blood-letting are recorded by Pelletier,¶ Lisfranc,** Larrey,†† and others.

* Med. Gaz., Oct. 4, 1848.
† Lib. of Med., vol. ii. p. 260.
‡ Med.-Chir. Trans., vol. vii. part ii.
§ Ibid., vol. vi. p. 455.
‖ Surgical Essays, part ii. p. 190, et seq.
¶ Revue Méd., 1827.
** Dict. de Méd. et Chir. Pract., art. Tetanus.
†† Mém. de Méd. et Chir. Militaire, t. xxxiv.

3020. Cataplasms, or Poultices, are external applications of a soft pap-like consistence, and are rendered anodyne, emollient, stimulant, or antiseptic, according to the ingredients employed in their formation. A simple poultice acts chiefly by virtue of its warmth and moisture. The various kinds of poultices have been considered in the first part of this work, under the headings of the respective articles which form the principal or active ingredients. They prove of great service in promoting the suppurative process in *abscesses* and *ulcerations*, and in *wounds* and *inflamed surfaces* generally.

3021. Cathartics, or Purgatives, are medicines which increase the quantity or number of the alvine evacuations. Those which are violent in their operation are called drastics; those which produce copious watery stools, hydragogues; and those which act mildly, aperients or laxatives.

The objects for which they are employed. 1. To remove crude matters or accumulated fæces from the intestines. 2. To act as derivatives, by draining off much of the serous portion of the blood. 3. To excite increased biliary secretion. 4. To stimulate the action of the absorbents in all parts of the body. 5. To promote the discharge of other secretions; thus, the previous use of purgatives often apparently promotes the action of diuretics. (Alison.*) 6. To affect remote organs, on the principle of revulsion or counter-irritation; *e. g.* Croton Oil, in cerebral affections. 7. To act indirectly as emmenagogues, by stimulating the various pelvic vessels and nerves.

3022. *Observations on their use.* 1. The action of every cathartic is followed by a greater or less amount of constipation. This is peculiarly the case with Rhubarb, and is less observable with the salines and Castor Oil.

2. Most cathartics operate on a particular part of the intestinal canal: thus Calomel, Jalap, and Colchicum stimulate the duodenum, and promote the discharge of bile; Aloes and Scammony act upon the colon and rectum; while saline and oleaginous purgatives seem to affect the whole intestinal canal.

3. Their purgative effects in many instances (as Aloes, Croton Oil, and Rhubarb) may be obtained, though not in so constant or uniform a manner, if applied to the skin or to an abraded surface, instead of being taken internally.

4. The constitution, temperament, and idiosyncrasy should always be considered when an aperient is to be administered. Generally speaking, salines are inadmissible in old, debilitated, or anæmic subjects, Aloes in hæmorrhoidal patients, and Mercury in scorbutic cases. It should be laid down as a general rule, that

* Outlines of Pathology, p. 84.

Croton Oil, Elaterium, and other drastic purgatives, should *never* be given when a milder aperient will answer the purpose.

5. It is an observation confirmed by experience, that saline purgatives, particularly the Sulphate of Magnesia, are often productive of hypercatharsis and other serious derangements, to residents in the Tropics.

6. Cathartics are more required in persons of a melancholic than in those of the sanguine temperament, and in women more than in men.

7. Cathartics should never be given to a woman when menstruating, and should be employed with great caution during pregnancy. The uterus, from its contiguity to the rectum, is likely to be affected by Aloes, which should, consequently, be carefully avoided. The milder aperients, as Castor Oil or Conf. Sennæ, are preferable.

8. Cathartics of a warm character, as Rhubarb, &c., are best adapted to old age and childhood. Salines, on the other hand, should be avoided.

9. The habitual use of cathartics cannot be too strongly condemned; such a practice lays the foundation of dyspepsia and other serious evils.

10. Cathartics are not required in every case of costiveness. In some persons, from idiosyncrasy, the bowels are not open for two or three days, or even longer. Such a state is compatible with perfect health. In such cases, it would be useless and injurious to administer aperients. (Dr. Chambers.) In the costiveness of hysterical women, cathartics may prove useless, whilst antispasmodics are indicated.

11. Under a course of cathartics it is advisable to intermit the medicine for a few days, in order to ascertain the real state of the alvine secretions. A knowledge of the characters of the evacuations caused by various cathartics is important. Ignorance of these points may lead to confounding the stools produced by cathartics with the effects of disease. Thus, the evacuations caused by Aloes, abounding as they do with mucus, and sometimes with blood, may easily be confounded with those of dysentery, and those caused by Sulphur may be mistaken for a deficiency of biliary secretion.

12. The time required for the operation of different purgatives is a point of practical importance; thus salines, from their rapidity (three or four hours), are best calculated for febrile and active diseases. Croton Oil generally operates in one or two hours; Jalap, Scammony, Gamboge, and Senna, in three or four hours; Rhubarb and Castor Oil, in four or six hours; and Aloes, from its difficult solubility, requires several hours before it takes effect.

13. The combinations which increase or diminish the activity

of purgatives require attention. Thus, the power of Colocynth is increased by a combination with Camphor, whilst that of Aloes, by the same combination, is rendered milder and less irritating. In spasmodic affections, the operation of a cathartic is promoted by the addition of Opium; and in all cases the combination of Senna with the neutral salts, and of Calomel with the resinous cathartics, promotes the cathartic operation. On the other hand, Soap and the aromatic oils render the action of Aloes almost inert; and a few grains of Ext. Hyoscyami, whilst they appear to have no considerable influence in increasing or diminishing the purgative qualities, prevent griping and tenesmus.

14. The facility with which a cathartic may be given in certain cases, as in Apoplexy, Mania, or Asphyxia, requires attention. Thus a drop or two of Croton Oil, placed at the base of the tongue, will often be applicable when the patient is unable or unwilling to swallow a draught or pill.

15. Cathartics may often be advantageously administered in the form of enema. They form a very valuable resource, either where the patient is unable to swallow, or where it is of importance speedily to unload the lower intestines.

16. Cathartics should not ordinarily be given so as to interfere with the regular rest.

17. They should not be given immediately after a full meal.

Cautions and contra-indications. 1. Pregnancy. 2. The presence of the catamenia. 3. Great debility and anæmic states. 4. Inflammatory states of the intestinal canal and Peritonitis. 5. Passive dropsies, particularly Hydrothorax, occurring in old persons or broken-down constitutions.

3023. *Therapeutic Uses. Inflammation.* "Purging," observes Dr. Watson,* "is an expedient which, in cases of violent inflammation or high general fever, should scarcely ever be omitted. To keep the bowels what is called open forms, indeed, a part of the antiphlogistic regimen; but in acute inflammatory diseases, active purging is of very great service. These two points are gained by it: the intestinal canal is freed from accumulated fæces or other matters, which, by their bulk or their acrimony, might prove irritating; and, at the same time, depletion is carried on by means of the serous discharge which is produced from that large extent of mucous membrane. There are some cases of inflammation in which the operation of purgative medicines is of especial benefit, as in *inflammatory affections of the Head*, either external or internal, of which part these medicines assist or cause depletion in a very sensible manner. We have an illustration of this in the paleness of the face, which often, during health, accompanies the action of a brisk cathartic. The usefulness of

* Lectures, vol. i. p. 230.

repeated purgatives is less distinctly seen *in inflammations situated within the Thorax*, although in these cases, also, they are often highly beneficial. They are efficient remedies *in all inflammatory conditions of the Liver*. But when *inflammation has fastened upon the Stomach or Bowels* themselves, although it may be indispensable that they should be unloaded of their contents, which are often composed of irritating, ill-digested food, and of morbid secretions no less teasing and hurtful, the propriety of going beyond this point is extremely questionable." Dr. Watson adds, that "much harm is often done by pressing the inflamed alimentary canal with active purgatives."

3024. *Fevers. In Intermittent, Remittent, Bilious-remittent, and Continued Fevers*, it is a point of first importance to administer, at the outset of the disease, a brisk purgative (Calomel or Croton Oil), in order thoroughly to remove all crude and ill-digested matter from the intestines, and to act as a depletive in the manner described in the last section. Saline purgatives seem peculiarly adapted for these cases, and may be repeated according to the urgency of the symptoms, or as the circumstances of the case may require. Dr. J. Johnson* considers that they operate in two ways: 1, by establishing a change from torpor of the intestines to a brisk peristaltic motion, whereby the blood, which has been shown to accumulate in the portal circle, is propelled forward, and the biliary as well as other secretions are increased; 2, by re-establishing the sympathetic influence which the internal surface of the alimentary canal exerts on the cutaneous surface of the body; for although drastic purging will check profuse perspiration, yet, where torpor pervades both the internal and external surfaces of the body, a restoration of the functions of the former contributes to the same event in the latter. They are more adapted for the active fevers of tropical countries than for the typhoid fevers of temperate climates. In *Typhoid* (*Enteric*) *Fever*, where ulceration of Peyer's patches is suspected, purgatives should be avoided; or, if administered, the very mildest should be selected. They are hardly admissible in the adynamic forms. Indeed, in these latter, Dr. Murchison† considers that the natural history of the disease appears to him to contra-indicate laxatives. Both with regard to *Typhus and Typhoid* (*Enteric*) *Fever*, he states that he has seen alarming prostration follow the use of purgatives. Their use requires the greatest caution.

3025. *In Puerperal Fever, Puerperal Peritonitis*, cathartics have been advised by Denman, Gordon, Armstrong, Hey, Hulme, and Murphy; and have been prohibited by Clarke, Campbell, Thomas, Baglivi, and others. The weight of evidence is in favour of the

* On the Influence of Tropical Climates, 6th Ed., p. 82.

† On Fevers, pp. 264, 569.

use of mild, unirritating aperients. Dr. Ferguson judiciously advises their being combined with Dover's powder or Henbane, in order to prevent tormina, which are often the precursors of Metro-peritonitis.

3026. *In Insanity*, purgatives should be freely employed. The stronger ones, as Croton Oil or Scammony, are generally indicated. Their value is universally admitted. *In Delirium Tremens*, purgatives are usually advised, but they require great care and circumspection in their use. I have frequently seen an increase of the symptoms follow the use of even a dose of Castor Oil. When employed, they should be of a stimulant nature, and not too violent. A mercurial purgative at the outset of the attack may be given with advantage.

3027. *In Hydrocephalus*, purgatives should never be omitted, unless much gastric irritation is present, when purgative enemas may be substituted. Various medicines have been advised; thus, toasted Jalap is prescribed by Gölis, Calomel by Dr. D. Davis, Hydrarg. c. Cret. by Thompson, the Citrate of Magnesia by Cheyne, Elaterium by Elliotson, and Croton Oil by Abercrombie. The form does not much signify, so long as it is moderately active.

3028. *In Epilepsy, dependent upon Plethora*, active purgation has long been considered a necessary and useful measure. Dr. Radcliffe,* who has examined the subject, concludes his able observations by stating that there is no evidence that any purgative is necessary in Epilepsy, unless to remove some accidental accumulation in the bowels.

3029. *In Chorea*, purgatives are advised by the best authorities. It appears from the observations of Dr. Bardsley, that the disease yields much more speedily under antispasmodics and purgatives combined, than under either, when employed singly.

3030. *In Hysteria*, purgatives prove occasionally useful. If connected with torpor of the uterine system, Aloes may be given; if with biliary derangement, mercurials; and if with plethora, salines. They must be varied according to circumstances.

3031. *In Tetanus*, purgatives have been used with great advantage. Sir J. M'Grigor† reports favourably of a persevering use of purgatives, given so as to produce daily a full effect. Croton Oil and Turpentine are perhaps the most serviceable.

3032. *In Paralysis Agitans*, active purgatives were found very efficacious by Riedlin, who strongly advocates their employment.

3033. *In Tic Douloureux, and other Neuralgic Affections*, much benefit is often obtained from active purging, particularly when we have reason to suspect that they arise from a deranged state

* Med. Times, May 24 and June 14, 1851.

† Med.-Chir. Trans., vol. vi.

of the bowels. Sir C. Bell* and others have found great benefit from the following pills :—℞ Ol. Croton. Tig. gutt. j.—ij., Ext. Coloc. Co. ʒj., M. Of this mass, gr. v. with gr. x. ọf Pil. Galban. Co., are given at bedtime nightly.

3034. *In Anasarca, Ascites, and Dropsical Affections*, active purgatives are often of great service. The hydragogue cathartics, as Elaterium, Gamboge, &c., are the most generally applicable. Cream of Tartar is also particularly valuable. Their use is often attended with speedy and decided improvement; but great caution is necessary in their exhibition when the patient is greatly debilitated. As Dr. Joy† observes, they should not be uninterruptedly administered, and the strength will often require to be supported under their use, by tonics and stimulants, and a light but nutritious diet.

3035. *In Purpura Hæmorrhagica*, they have been found very useful. They are particularly recommended by Dr. Hasty, of Dublin.

3036. *In Colica Pictonum*, the utility of purgatives is undoubted; but some care is necessary in the selection of the medicine to be employed. The Sulphate of Magnesia, Croton Oil, Oil of Turpentine, and Castor Oil, are those which appear the most appropriate; and in many cases, their action is rendered more certain and efficacious by being combined with Opium and antispasmodics. They are only to be regarded as adjuncts—valuable ones, it must be admitted—to other treatment. *In Ileus*, purgatives have been advised; but, unless they afford speedy relief, they should not be persisted in; Opium, in such cases, should be substituted. (See Opium, sect. *Colic.*) *In some Spasmodic Affections of the Bowels, Flatulent Colic, &c.*, a purgative of Castor Oil or Oil of Turpentine, or of both these oils, often affords immediate relief.

3037. *In Dysentery*, mild cathartics, if given judiciously, are most beneficial; but if ill chosen, or given in inappropriate cases, they are productive of the worst effects, increasing, in a marked degree, the severity of the symptoms. The oleaginous purgatives, particularly Castor Oil, are very valuable, but are inferior to the Bitartrate of Potash, which, either alone or with Jalap, in the form of Pulv. Jalapæ Co., or with Sulphur, is the best purgative which can be resorted to.

3038. *In Congestion of the Liver*, active cholagogue purgatives must be had recourse to, and repeated frequently, so as to keep up a free flow of bile. *In Jaundice, depending upon hepatic derangement*, Dr. Graves‡ observes, that after you have succeeded in producing bilious evacuations, you should never omit pre-

* Lond. Med. Gaz., 1825.
† Lib. of Med., vol. v. p. 305.
‡ Clin. Lect., vol. ii. p. 524.

scribing an active aperient every second or third day, for the space of ten days or a fortnight, with the view of carrying off the remains of the disease, so as to prevent the occurrence of a relapse. He adds, that this is a simple but successful practice, and one which should never be omitted.

3039. *In Diabetes*, when the patient is not much weakened and the disease is recent, aperients may be given with advantage. Free alvine evacuations appear to reduce considerably the amount of fluid discharged, and also to correct in a measure its mellitic character. Rhubarb or Magnesia, or both these medicines combined, may be used with advantage.

3040. *In Erysipelas*, purgatives should not be neglected. The neutral salts, particularly the Sulphates of Magnesia or Potash, are the best which can be employed. They should be combined with other remedies, as the strength of the patient and the character of the disease require. The combination of the Sulphate of Magnesia with the Sulphate of Quinine often proves useful. *In Gangrene*, previous to the exhibition of tonics, purgatives should be administered; they should be of a warm, carminative character, and conjoined with remedies of the latter class.

3041. *Hypochondriasis*, particularly when connected with derangement of the digestive organs, is often benefited by the judicious use of mild aperients. If the liver or biliary secretion be deranged, mild mercurials with carminatives should be given; if acidity of the primæ viæ be present, the alkalies, particularly Magnesia; and if the stomach be weakened by disease, &c., Rhubarb or Castor Oil, with stomachics, should be employed.

3042. *In Croup*, purgatives (Calomel, Scammony, or Jalap) prove highly serviceable, not only as a means of removing any crude, ill-digested matter, worms, &c., from the bowels, but as derivatives from the seat of disease. They need not interfere with the other necessary remedial measures.

3043. *In Bronchorrhœa*, purgatives prove of great service. Dr. Copland* states that he has never seen a case of the disease which has not been much relieved by purgatives; taking care, however, that they should not lower the energies of the constitution, by combining them with tonics, &c., and allowing light nutritious food.

3044. *In Albuminuria*, Dr. Osborne† observes that the use of purgatives may be easily overlooked, in our anxiety to strike at the root of the disease; but that their value can hardly be overestimated, and is, indeed, limited by the tendency to gastritis and enteritis, which so generally prevails. If it be true that the stomach and bowels have the faculty of eliminating urea, the tendency now mentioned must be viewed as an effort of nature

* Dict. Pract. Med., vol. i. † Dub. Quart. Journ., Aug. 1851.

to relieve herself, when the proper emunctories fail to do so. Certain it is, that a powerful purgative, such as Elaterium, given at intervals, tells more on the swellings, and exhausts the strength less, than the plan of daily purging.

3045. *In Gout*, purgatives were forbidden by Sydenham and Mead, but their use was re-introduced by Hoffmann, and, of late years, they have been very generally employed. Mild carminative aperients certainly appear beneficial. A dose of Calomel (gr. iij.—iv.), followed by a saline aperient, is sometimes useful.

3046. Collyrium, a fluid application for the eyes, commonly called an eye-wash. Collyria are divided by Dr. Jacob* into four classes, viz., Stimulant, Astringent, Sedative, and Escharotic.

1. *Stimulants*, as Vinum Opii, weak solutions of the Sulphates of Zinc and Copper, are most useful when there is a sensation of scalding, with a flow of tears, and intolerance of light; or when no other inconvenience remains, except a certain tenderness or rawness of the surface, depending, perhaps, upon a want of epithelium.

2. *Astringents*, as Alum, Tannin, Liq. Plumbi, are serviceable, both in acute and in chronic stages of Ophthalmia. Their mode of action is obscure: all that seems proved is, that the surface to which an astringent is applied becomes shrivelled and corrugated; but whether the vessels become diminished in calibre, or the secreting structures disabled from acting, or the epithelium coagulated by its operation, remains to be determined. Be the change, however, what it may, it seems to be proved by experience, that astringents diminish the enlargement of vessels caused by inflammation; in fact, remove the increased vascularity or redness, while they at the same time diminish or arrest the secretion of purulent matter, and perhaps benumb the sensitive villi or papillæ.

3. *Sedatives*, as warm stupes, or tepid lotions, containing Opium, Henbane, Belladonna, &c. They are chiefly useful when the case assumes a neuralgic character; but it appears undecided whether their beneficial effect is not derived as much from the warmth and moisture, as from the sedative properties of the medicines. The relief obtained from them is by no means constant. Vinum Opii seems to combine the properties of a sedative and stimulant, and is a peculiarly valuable application.

4. *Escharotics*, as saturated solutions of the Nitrate of Silver, the Sulphates of Copper and Alum, are useful in the acute and chronic stages of purulent Ophthalmia, in ulceration of the cornea, &c. They operate as chemical solvents of the tissues to which they are applied; and being so, must be very cautiously employed.

* Dub. Med. Press, May 7, 1851.

3047. *The mode of applying Collyria.* Dr. Jacob observes, that in order to secure a full exposure of the whole conjunctiva of both the eye and the lids to the contact of the fluid, it should be introduced beneath the upper lid at the outer angle, by separating the two surfaces, and introducing a large drop, from a full-sized camel's-hair pencil, between them. By laying the thumb or finger on the skin between the lid and the brow, and pushing it up over the margin of the orbit, a space is made between the lid and ball, into which the fluid should be dropped; and from this it will spread over the whole surface. If a more complete saturation of the upper lid be required, it must be everted, and repeatedly brushed over with the solution.

3048. *Observations on their use.* 1. Collyria, particularly the stronger ones, should not be employed indiscriminately; they are often, not only unnecessary, but absolutely mischievous. 2. It is the opinion of many of the best oculists of the day, that the employment of collyria of a strength to cause pain in the eye tends to induce subsequent chronic inflammation. 3. Those containing Lead should never be employed when ulceration of the cornea exists, as it is apt to leave a permanent opaque cicatrix. 4. Those containing Nitrate of Silver sometimes cause a blackish or bluish discoloration of the conjunctiva.

3049. Counter-irritation. This term designates any irritation artificially established, with a view to diminish, counteract, or remove some other irritation or inflammation existing in the body. (Dr. Williams.) The substances employed in establishing this state are called counter-irritants, and may be divided into— 1. Rubefacients. 2. Pustular counter-irritants, as Tartar Emetic. 3. Vesicants, or Blisters. 4. Issues and Setons. 5. Caustics, or Escharotics. Each of these is considered under its respective head. They are chiefly applicable to chronic diseases; but there are cases when vesicants or blisters prove in the highest degree useful in acute diseases, the first inflammatory symptoms having been subdued by depletion, &c.

The extent and form of counter-irritation should, in a great measure, be regulated by the character of the disease or lesion which it is intended to cure: thus a rubefacient is chiefly indicated in irritation of mucous membranes; a vesicant, in inflammation of serous membranes; and a seton or issue, when the disease is of a suppurative character.

Therapeutic Uses. These are enumerated fully in the articles Blisters, Issues and Setons, &c.

3050. Derivants are agents employed to produce an artificial hyperæmia in some part of the body distant from the seat of an existing hyperæmia. Under this head, therefore, may be included

several forms of counter-irritation already noticed; but, in addition, there are two important modes of derivation to be referred to—viz., Dry-cupping and the application of Junod's Exhausting Apparatus.

3051. *In Intermittent Fevers*, M. Gondret* states, that in his private practice, during a period of twenty-seven years, he has never once met with a case of Ague which has not yielded to dry-cupping along the spine. He gives the following directions for its use:—Apply eight or ten middle-sized cupping-glasses on each side of the spinal column, on the neck downwards, and let them remain on for thirty or forty minutes. The time for applying the cups is the beginning of the cold stage, or, if it be possible, a short time before its accession. This not only prevents the attack, but, at the same time, the hot fit and the sweating. In most cases, one application of the cups is sufficient to effect a cure; but, in long-standing cases, it requires to be repeated three or four times. This simple remedy deserves a further trial.

3052. *To Poisoned Wounds, whether from Snakes or other sources*, the application of cupping-glasses (dry-cupping) over the affected part is one of the surest and best means of preventing the ill effects which would otherwise probably ensue. The valuable experiments of Sir David Barry† place this beyond a doubt. Several dogs and rabbits were bitten by vipers. To the bites of some he applied the cupping-glass; to the bites of others, nothing. When the glass was applied for half an hour to such as had been bitten by one, two, or even three vipers, no symptom whatever of constitutional disturbance appeared; whilst those which were left to nature were invariably attacked with convulsions and stupor: none of them, however, died. From these experiments he draws the following inferences:—1. That neither sound nor wounded parts of the surface of a living animal can absorb when placed under a vacuum. 2. That the application of the vacuum by means of a piston cupping-glass arrests or mitigates the symptoms caused by the poison. 3. That the application of a cupping-glass for half an hour deprives the vessels of the part over which it is applied of their absorbent faculty for an hour or two after the removal of the glass. 4. That this measure is rendered, in a great measure, inoperative if extensive scarifications have been made in the neighbourhood of the original wound.

3053. *In Hysterical Headaches*, Dr. Graves‡ speaks highly of dry-cupping at the nape of the neck, between the shoulders, and

* See Ranking, Abstract, vol. ix. p. 15.

† Researches on the Influence of Atmospheric Pressure on the Blood, &c., 8vo, Lond. 1826; and Cooper's Surg. Dict., p. 1483, 7th Ed.

‡ Clin. Lect., vol. ii. pp. 315, 548.

below the clavicles. Six cups should be applied, and should be allowed to remain on for ten or fifteen minutes. During a paroxysm of *Hysteria*, he also found their application attended with the best effects. *In Epilepsy*, particularly where previous headache or other premonitory symptoms advertise an approaching fit, dry-cupping, according to the experience of Dr. Graves, is most useful in averting the paroxysm. He also mentions cases of *Sciatica*, *Lumbago*, and *Neuralgia*, which were greatly benefited by its use.

3054. *In the Dyspnœa and Cough of Phthisis*, dry-cupping on the chest, particularly under the clavicles, often affords sensible relief.

3055. In many forms of *Atonic Inflammation and Passive Congestion*, the application of the dry cupping-glasses at a distance from the affected organ will be found a valuable adjuvant to other treatment, directly relieving the congested or inflamed organ without diminishing the strength of the patient.

3056. Junod's Exhausting Apparatus, or Boot, may be described as a large cupping-glass fitting over the leg and thigh. The apparatus is exhausted by means of a syringe, and consequently a large proportion of the blood in the body is drawn to the lower extremity, and the circulation through the rest of the system is proportionately relieved. It has been found that, under its application, the force and frequency of the circulation are reduced, and in certain cases of inflammation of internal organs this effect has continued after the use of the apparatus has been discontinued. It appears to be especially valuable in acute inflammation where the type of the affection renders abstraction of blood inadmissible.* The average time during which it should be applied is from fifteen to forty minutes.

3057. Diaphoretics are medicines which increase the cutaneous exhalation; those which produce profuse sweating are designated Sudorifics. They may both be considered under one head. They act either by stimulating the sudoriparous glands of the skin, or by augmenting the force of the circulation generally, or by both these ways at once. Of the first, we have examples in the influence of saline diaphoretics, and in that of the large ingesta of aqueous fluids. Of the second, in the effects of stimulant diaphoretics, alcoholic liquors, and violent exercise. Tepid diluents and external warmth seem at once to augment the vigour of the circulation, and to stimulate the cutaneous exhalents. Emetics and nauseants have also a great tendency to relax the cutaneous surface. (Dr. Joy.)

* Army Medical Report, Med. Times and Gazette, Sept. 10, 1853, and Oct. 15, 1853.

The objects for which they are employed are thus summed up by Dr. Pereira:—1. To restore the cutaneous secretion when it has been checked by cold, and thereby to relieve the consequences of its suppression. 2. To promote the subsidence of diseases which naturally terminate in augmented cutaneous secretion, as in simple continued fever, the exanthemata, and intermittents. 3. To produce determination to the surface in various maladies attended by coldness of the skin and congestion of the internal organs. 4. To antagonize other secretions; thus, diaphoretics are sometimes employed to check excessive secretion of urine, or to relieve diarrhœa. 5. To establish a substitute for some other secretion; thus, when the renal secretion is diminished or suppressed, we endeavour to relieve the system by diaphoretics.

Their action is promoted:—1. By previous blood-letting, if the skin be hot, and the febrile symptoms urgent. 2. By the free use of diluents, excepting where antimonials have been taken, when vomiting will probably supervene. When the temperature of the surface is high, cold diluents should be used; when it is moderate, they should be tepid. 3. By the use of flannel next to the skin. 4. By keeping the body in an equal and warm temperature. 5. By avoiding the use of cold drinks after the perspiration has once begun to flow. 6. By bathing the feet in hot water.

Their action is retarded—1, by diuretics and purgatives; 2, by exposure of the body to the cold air.

3058. *Remarks on their Use.* 1. Sweating may be produced not only by medicines introduced into the stomach, but by many external agents: as affusion, hot and cold; by the vapour bath (a very powerful means); by frictions, &c. These are considered under other heads.

2. It is more reasonable as well as beneficial in practice, to have regard to the changes in the circulation producing diaphoresis, than to the action of sweating itself. (Dr. Holland.)

3. The amount of perspiration is rarely a just measure of the good obtained, and to make this a primary object is likely to give a wrong and injurious bias to the treatment of disease. (Dr. Holland.)

4. The period of the day best suited for their exhibition is at bedtime, as there appears to be a greater disposition to perspire at that time than at any other period of the day. Dr. A. T. Thompson, however, considers that the morning, after sleep, is the period best suited for their exhibition.

5. When sweating is to be checked, the body should be dried with warm towels, and the patient moved into dry flannels, taking care not to expose the body to the cold air; the coverings

should be gradually lessened, allowing the arms to be first exposed to the air. (Dr. A. T. Thompson.)

6. Stimulant diaphoretics should not be given at the height of an inflammatory attack, as their stimulating property tends to increase the violence of the symptoms.

7. The exhibition of stimulant diaphoretics in fevers, &c., whilst the body is perhaps at the same time kept heaped with a profusion of bed-clothes, tends to the production of typhoid symptoms and miliary eruptions. (Dr. Joy.)

Diaphoretics are indicated—1, in rheumatic affections: 2, diseases of the skin; 3, Diarrhœa and Dysentery; 4, febrile and inflammatory states; 5, Dropsy; 6, Gout; 7, secondary or constitutional Syphilis, &c.

3059. Diuretics are medicines which increase the quantity of the urinary discharge. They may operate in four ways—1, as direct stimulants to the kidneys, by being absorbed into the circulation, and passing unchanged to them; 2, by undergoing decomposition *in transitu*, and acting on the kidneys by one or more of their constituents; 3, by acting primarily on the stomach and primæ viæ, and sympathetically on the kidneys; 4, by stimulating the disordered capillary system to a more healthy action.

The objects for which they are administered,—1, to restore a natural amount of urine, when, from any cause, it has been diminished; 2, to promote the elimination of any acrid or poisonous matter from the system; 3, to relieve inflammatory action; 4, to promote the absorption of dropsical effusions; 5, to augment the elimination of water, and thereby to enable the urine to keep in solution the solid constituents of this secretion, as well as to act as a solvent for calculi contained in the urinary organs;* 6, to act as derivatives in diseases of the heart; 7, as evacuants in fever.

Their operation is promoted—1, by the previous employment of depletion and antiphlogistic remedies, if the patient be not already too much debilitated; 2, by drinking plentifully of diluents, particularly when salines have been employed; 3, by avoiding all agents which cause perspiration or purging; 4, by remaining in a cool and equal temperature; 5, by a combination with other remedies of the same class. N.B. Certain passions, particularly fear, increase the urinary secretion. Even under the most favourable circumstances, diuretics are very uncertain in their operation.

Their action is impeded—1, by Opium; 2, by the use of diaphoretics and cathartics; 3, by abstinence from diluents.

The period of the day best suited for their administration is

* Pereira, vol. i.

the daytime, the patient remaining out of bed during their operation.

3060. *Therapeutic Uses. Anasarca, Ascites, and Dropsical Affections generally*, much improve under copious diuresis. When the patient is strong, or not debilitated by long previous illness, the abstraction of blood should precede the use of diuretics; by this means their efficacy and operation are greatly increased. In passive dropsies, it is often advantageous to combine diuretics with tonics and mild stimulants. *In Dropsy connected with Disease of the Heart*, especially when accompanied by a scanty secretion of high-coloured urine, diuretics prove of the highest service. In most cases, the dyspnœa, palpitation, cough, &c., decrease in the same proportion that the urine increases, and the dropsy disappears. Digitalis, Pulv. Scillæ, and Potas. Bitart. are excellent diuretics in these cases. (Dr. Hope.)

3061. *In Inflammatory Dropsy, attendant on Granular Disease of the Kidney*, Drs. Bright, Osborne, Watson, and others, condemn the use of diuretics, particularly those of a stimulating nature; but Dr. Christison* considers that they may be used without any risk of aggravating the primary disease, and that hydropic effusions cannot, in general, be so efficiently removed in any other way. He advises the following formula :— ℞ Pulv. Digitalis gr. j.—ij., Potass. Bitart. ʒj.—ʒij., M. ter in die ex aq. Dropsies are occasionally removed by the endermic use of diuretics.

3062. *In Valvular Disease of the Heart*, Dr. Hope† remarks that diuretics are remarkably beneficial in every stage; for, by drawing off the serous portions of the blood, they diminish the quantity, without deteriorating the quality of that fluid, and thus relieve palpitation and dyspnœa, and obviate infiltration, without materially reducing the strength.

3063. *In Hypertrophy of the Heart*, Dr. Hope‡ found the most decided advantage result, in severe cases, from diuretics; not only when there was dropsy, but when this state was absent. They act as powerful derivatives.

3064. *In Puerperal Fever*, Dr. Murphy§ states that he has found diuretics, particularly the Nitrate of Potash, very efficient as evacuants in this disease. The kidneys, in this case, act as the outlet for the poison in the blood.

3065. *In Inflammation*, diuretics are sometimes required, not merely on account of any derivation from the seat of disease thereby procured, but with the view of reducing whatever serous plethora may exist, and of removing from the circulation those

* Lib. of Med., vol. iv. p. 293.
† On Diseases of the Heart, p. 408.
‡ Ibid., p. 287.
§ Med. Gaz., Jan. 28, 1850.

ultimate products of assimilation which are liable to accumulate in the blood, to an injurious extent, during the febrile state, and thereby to heighten the local affection. The refrigerant diuretics, as Sp. Ether. Nit., Potas. Bitart., &c., should be employed for this object. (Dr. Copland.*)

3066. *a.* ELECTRICITY.
b. FARADISATION ; ELECTRO-MAGNETISM ; MAGNETO-ELECTRICITY.
c. GALVANISM ; VOLTAIC ELECTRICITY.

These three varieties of the same agent, although closely allied, yet differ somewhat in their special therapeutic uses and action. All the forms of Electricity act as stimulants to the nervous system, and, unlike other remedies of the class, the stimulation they produce is not followed by subsequent depression. *Common or Frictional Electricity* may be obtained for medical purposes from the ordinary electrical machine, in which it is produced by the friction of a glass plate or cylinder on a rubber. Frictional Electricity is not so much used in the present day as formerly. In addition to its action as a nervine stimulant, it may be employed to produce counter-irritant effects. A common mode of using it is as follows:—"The patient is placed upon an insulating stool, and made to take hold of the prime conductor of the electrical machine. Sparks are then drawn from the body, either by the hand of the operator or by metallic conductors. By this proceeding a sharp pricking or pungent sensation is produced at the points touched; and after a time the skin is reddened, and an eruption resembling lichen urticatus breaks out."† *Faradisation* is the term applied by Duchenne to indicate the application to therapeutical purposes of Faraday's discovery, "That electric currents of instantaneous duration are induced in conducting-wires by the passage of an ordinary galvanic current (*electro-magnetism*), as well as by the approach to, and withdrawal from, conducting-wires, of a permanent magnet of steel (*magneto-electricity*)."‡ The *Faradic or induction current* is an *interrupted current*, and differs in its physiological, chemical, and physical effects from the *ordinary Galvanic* or *continuous current*. The difference in the physiological effects of the interrupted (Faradic) and continuous (Galvanic) currents are exemplified by applying each in turn to the face: the continuous galvanic current will be found to excite the retina, producing the sensation of a flash of light, whilst it has but little action on the facial muscles; on the other hand, the interrupted galvanic current has little or no action on the retina, but produces a powerful

* Dict. Pract. Med., vol. ii. p. 411.
† Althaus on the Treatment of Paralysis and Neuralgia by Galvanization and Faradisation, p. 3.
‡ Op. cit., p. 9.

effect on the muscles.* The continuous galvanic current always moving in the same direction produces considerable chemical effects, whilst induction currents, which move alternately in different directions, have only a slight chemical action. Dr. Althaus,† therefore, observes, "that if we wish to make use of the chemical effects of electricity, it follows that the continuous galvanic current alone should be used." This observation applies to the treatment of *Aneurisms* and *Varices* by electricity. For the production of the ordinary galvanic current, Dr. Althaus recommends that Daniell's, Grove's, or Bunsen's batteries be employed. For Electro-magnetism and Magneto-electricity, the induction machines used for medical purposes are either volta-electric or magneto-electric (rotatory). The latter are generally preferred on account of their being cleaner and always ready for action.

If electricity be applied to animals in too large quantities, or in too great a degree of intensity, death ensues; and, as in some constitutions, there is a peculiar susceptibility to its action, and as there are no means of distinguishing beforehand those with whom it disagrees, it is always advisable to use it in the first instance cautiously, commencing with weak currents or slight shocks. It is, as a rule, a purely chronic remedy, applicable only to chronic diseases, and required to be continued for several weeks in succession. Common electricity should be used with caution in inflammatory and plethoric states of the body, and in pregnancy, as miscarriage might be produced.

Electricity, as an anæsthetic agent, was first introduced by Dr. Richardson,‡ but in this character its field of action is very limited, being applicable only to the induction of local anæsthesia, as in tooth-drawing, &c., and even here it is inferior to congelation, &c.

3067. *Therapeutic Uses of Electricity. In Paralysis and Paralytic Affections generally*, electricity, if employed with due care and in proper cases, proves highly serviceable. It is inadmissible so long as inflammatory or febrile symptoms are present; is productive of no benefit if the disease be connected with organic lesion of the nervous system; and should never be applied in recent cases, as in Apoplexy, if there be reason to suppose that the effused blood or coagulum remains unabsorbed. Experience has fully justified the observation of Dr. Percival, that few cases which resist the power of small and repeated shocks will yield to great and terrifying ones. It is in local Paralysis, when a nerve or set of nerves is affected, unconnected with organic

* Op. cit., p. 9.
† Op. cit.
‡ Med. Times, Sept. 11, 1858.

disease of the nervous centres, when the Paralysis arises from torpor of the nerves themselves, that electricity proves most useful. Dr. Golding Bird* gives the following results of his experience with this remedy:—Of 12 cases of *Paralysis from Affections of the Nervous System*, 6 were cured, 2 relieved, 4 received no benefit. Of 11 cases of *Saturnine Paralysis, or "dropped Hand,"* 5 were cured, 4 relieved, 2 not benefited. Others have also found it signally beneficial. Of 10 cases of *Paralysis from Rheumatism, exposure to cold, &c.*, 5 were cured, 3 relieved, 2 not benefited.

In Paralysis resulting from a stroke of lightning, a case is related by Mr. Orton, of Sunderland, in which a complete cure was effected by electricity.

In Paralysis Agitans, it may be employed with a prospect of benefit.

The direction of the current in these cases is by no means unimportant. "In Paralysis of sensation only," observes Dr. Pereira,† "the current should be direct or centrifugal. In Paralysis of motion, it should be inverse or centripetal. In Paralysis of both sensation and motion, the vibrating current, obtained by the ordinary coil (volta-electric induction) machine, is peculiarly appropriate; for by this the sensitive and motor nerves are alternately excited, while the one current promotes the restoration of the excitability, which may have been lessened by the preceding current."

3068. *In Nervous Aphonia*, electricity has been employed. M. Pelligrini‡ relates the case of a man who, after a fit of Epilepsy, lost his powers of speech. Several remedies were employed in vain, but under the use of electricity he recovered his voice in a few days. Dr. Flamant,§ of Strasburg, relates a case of twelve years' standing, consequent on a sudden fright, cured by the same means.

3069. *Amaurosis depending upon torpor of the Optic Nerve* is, according to the experience of Mr. Hey‖ and Mr. Ware,¶ much benefited by the employment of electricity. On the other hand, Mr. Travers,** Mr. Lawrence,†† and Mr. Tyrrell,‡‡ concur in stating that, although fairly tried, they have never seen any good effect result from it. The mode of using it in these cases is by the aura, or by slight sparks drawn from, or directed against the eye and surrounding parts. It will certainly fail if the Amaurosis arise from organic disease of the nerve or nervous centre.

3070. *In Nyctalopia*, electricity is occasionally useful. Mr.

* Guy's Hosp. Reports, vol. xi.
† Mat. Med., vol. i. p. 45.
‡ Journ. de Pharm., Jan. 1844.
§ Dub. Hosp Gaz., Feb. 15, 1856.
‖ Med. Obs. and Enquiries, vol. v. p. 1.
¶ Obs. on Cataract, &c., vol. ii. p. 409, Lond. 1812.
** Synopsis of Dis. of the Eye, p. 309.
†† On Diseases of the Eye, p. 545.
‡‡ Cyc. Pract. Surg., p. 105, vol. i.

Bampfield* states that he knew several instances in which complete success attended its use.

3071. *In Chorea*, electricity was first employed by De Haen. Dr. Addison† employed it with benefit, and Dr. Golding Bird‡ speaks highly of its efficacy. He used it in the form of sparks taken in the course of the spinal column, every alternate day, for about five minutes at each time. It is chiefly useful in cases depending upon deranged catamenial function. *In Epilepsy*, it was employed by Dr. Franklin, Linnæus, &c., but the results were on the whole unsatisfactory. (See sect. 3088.)

3072. *In Amenorrhœa*, it often proves highly serviceable. Of twenty-four cases in which it was employed by Dr. Golding Bird,§ twenty were cured, and two derived no benefit; but these were complicated with other diseases. The current may be directed from the sacrum to the pubes, or from hip to hip. It is, without doubt, a very powerful emmenagogue.

3073. *Constipation depending upon Paralysis of the Intestines* has yielded to the use of electricity in the hands of M. Terzi.‖ *In Hernia*, Dr. Clemens¶ has used electricity as a radical cure. The hernia being reduced, and the patient placed in a semi-recumbent position, the ball of the conductor is carried as far into the hernial canal as possible, and the application of the electricity continued for five minutes, its power being increased day by day. After a few *seances*, the mouth of the ring becomes diminished in size, and the hernia will not descend as easily as heretofore. A perseverance in this treatment effects a cure. No ill effects have been observed to follow its employment. For the same object, Dr. Clemens also suggests the use of a galvanic hernia truss.

3074. *In Nervous Deafness*, it has occasionally been used; but the weight of evidence is unfavourable to its use. In some cases it appears to have been prejudicial.

3075. *The other diseases in which it has been employed*, but with very uncertain benefit, are:—1. *Tetanus*. 2. *Opacity of the Crystalline Lens*. 3. *Torpid conditions of the Liver*. 4. *Chronic Glandular Enlargements*. 5. *Calculous Affections, as a solvent of Stone*. 6. *Spasmodic Asthma*.

3076. *Therapeutic Uses of Electro-Magnetism and Magneto-Electricity*. *In Chronic Rheumatism and Rheumatic Paralysis*, electro-magnetism is often productive of benefit. It is particularly recommended by Dr. Davies,** of Bath, who ascribes the benefit derived from it to its re-establishing the electric current

* Med.-Chir. Trans., vol. v.
† Guy's Hosp. Reports, vol. ii. p. 493.
‡ Ibid., vol. vi. p. 84.
§ Op. cit.
‖ Brit. and For. Med. Rev., April 1850.
¶ Ranking's Abstract, 1859, vol. xxix. p. 138.
** Prov. Journ., Nov. 15, 1848.

in the muscles, which he supposes is diminished and interrupted by the rheumatic condition of the system. Dr. Bence Jones,* on the other hand, employed it in this class of diseases (paralytic), and reports unfavourably of its efficacy. Prof. Winer,† after relating three cases of Paralysis cured by this agent, observes that in this and in every other disease in which it was applied, a peculiar febrile action always preceded its beneficial operation. Both Faradisation and Galvanism have been employed with great success by Dr. Althaus in various forms of *Rheumatism and Paralysis*.‡ With regard to the former disease, he states that the curative influence of Faradisation is most remarkable in rheumatism of the deltoid. The removal of *rheumatic effusions* in the joints is said to be expedited by Faradisation and Galvanism. If the effusion be considerable, the latter form is to be preferred.

3077. *In Neuralgia the result of accident*, electro-magnetism has been successfully employed by Mr. Tuson.§ Dr. Wisgrill,‖ amongst many cases of *Tic Douloureux*, relates one of twenty-five years' standing, which was cured by electro-magnetism. It was applied first once a day for a short period, and subsequently twice a day, for a full hour each time. Dr. Althaus has found great benefit from the use both of the induced and continuous current in the treatment of *Neuralgia*. Various forms of *Anæsthesia* from paralysis of the sentient nerves have been found to be greatly benefited by Faradisation. Dr. Althaus mentions a case of *Deafness* which was cured by it.

3078. *In Periodic Convulsions*, Dr. Byrne¶ (U.S.) found this agent of the highest service. The poles of an ordinary electro-magnetic battery were applied, one to the occiput, and the other to the sacrum.

3079. *In Hydroceles of recent occurrence*, Prof. Frost** (U.S.) advises the use of electro-magnetism. He relates an illustrative case in which it appeared to promote the absorption of the effused fluid.

3080. *In Opacities of the Cornea*, Faradisation is recommended by Dr. Althaus,†† who quotes Dr. A. Von Graefe in its support. The latter used, in patients in whom both eyes were similarly affected, the induced current on the one, and Laudanum, Nitrate of Silver, &c., on the other, with the result that the cure by Faradisation was much more rapid than by the other means.

3081. *In indolent Ulcers and Wounds*, both Faradisation and

* Lond. Journ. of Med., No. ii. 1849.
† Brit. For. Med. Rev., April 1845.
‡ Op. cit.
§ Med. Times, Feb. 24, 1849.
‖ Brit. For. Med. Rev, April 1845.
¶ Charleston Med. Surg. Journ., 1848.
** Ibid., July 1848.
†† Op. cit., p. 21.

Galvanization have been successfully employed to stimulate the healing process by Dr. Althaus and Mr. T. Spencer Wells.*

3082. *To stimulate the secretion of Milk*, Faradisation has been successfully employed by Dr. Skinner,† of Liverpool, Dr. Althaus, and others. In a case of *Suppression of Milk*, electricity proved successful in the hands of M. Bequerel.‡ It was passed in various directions through the substance of the breast, by means of moistened sponges applied to the ends of the wires. Its effect was almost instantaneous.

3083. *Therapeutic Uses of Voltaic Electricity, or Galvanism. In Local Paralysis unattended by organic lesion of the nervous centres, particularly in Mercurial and Lead Palsy*, galvanism has proved highly serviceable. Mr. Grantham found it particularly useful in a peculiar form of Paralysis which attacks block-printers. *In Incontinence of Urine in Children dependent on loss of nervous power*, Mr. Simon§ successfully employed galvanism, the current being passed along a catheter which had been previously introduced into the bladder. *In Paralysis of the Bladder* and *Vesical Catarrh*, electricity proved effectual in the hands of M. Peterquin;‖ and a case of *Impotence* cured by the same means is recorded by Dr. N. Althaus.¶ Dr. Rodolfi has successfully employed electricity in the case of *Hydrocele.***

3084. *In Neuralgia*, galvanism sometimes succeeds when other remedies fail. Its use requires to be persevered in.

3085. *In Spasmodic Asthma*, Dr. Wilson Philip†† employed galvanism. By transmitting its influence from the nape of the neck to the pit of the stomach, he gave decided relief in every one of the twenty-two cases in which he employed it. The power varied from ten to twenty-five pairs of plates. He also found it, when thus applied, very serviceable in some cases of *Indigestion.*

3086. *In Beri-beri*, galvanism was employed with benefit in some cases by Dr. George Thompson,‡‡ of the Madras Service. It was obtained from fifty small plates, and sent through the spine, by small blistered surfaces on the neck, sacrum, and feet, for ten minutes. In one case the patient was able to walk between two men after the first application; and after the second, with the assistance of one. He gradually recovered. It was found much more effectual when directed through the spinal cord than along the nerves of the extremities. Dr. Malcolmson considers that galvanism will probably be of use in the removal of the paralytic symptoms.

* Althaus, op. cit.
† Transactions of Obstct. Soc., 1863.
‡ Gaz. Hebd. de Méd. et de Chir., Jan. 1857.
§ Med. Times, Nov. 14, 1848.
‖ Ranking's Abstract, xxx., p. 218.
¶ Ibid., p. 218.
** Ibid., p. 229.
†† Philosophical Trans., 1817, p. 22.
‡‡ See Malcolmson on Beri-beri, p. 291.

3087. *In Organic Diseases of the Eye, in Opacity of the Cornea, Incipient Cataract, &c.*, galvanism was employed extensively by Dr. Crusell, of Finland. The success of the treatment is said to have been very striking. Dr. Lerche,* of St. Petersburg, adopted the same practice, and performed some remarkable cures in that city. Mr. H. Lobb† has recorded an interesting case of *Rheumatic Ophthalmia* cured by galvanism; he adds, that in *all cases of Ophthalmia* in which he used the continuous galvanic current, a rapid cure was effected. Dr. Althaus, however, advocates Faradisation in preference to galvanization in the treatment of opacities of the cornea, in consequence of the peculiar action of the continuous current on the retina (*ante*).

3088. *Epilepsy* has occasionally been treated with galvanism. Dr. Duncan,‡ Mr. Whitlam,§ and others, have advocated its employment, and recorded cases in which it appears to have exercised a favourable influence. "Of electricity and galvanism," observes Dr. Copland,‖ "it may be said generally that they have occasionally been found successful; that when resorted to shortly before the seizure, they have sometimes suppressed it, or rendered it more mild; that when applied during the paroxysm, they have often mitigated its violence and duration; and that the safest mode of employing electricity is to place the patient on the insulating stool, and subject him to the electric bath, and to draw sparks from different parts when thus insulated, and placed in connection with the prime conductor."

3089. *In Parturition*, galvanism has been employed by Dr. Radford,¶ of Manchester, with a view of inducing uterine contractions in cases of hæmorrhage; and also when the labour is tedious, in consequence of atony of the uterus. The conclusions arrived at by Prof. Simpson on this point were, however, unfavourable. The subject has since been examined by Dr. Mackenzie.** He considers—1. That a sustained current of electricity passed through the gravid uterus, directed longitudinally through the uterus from the upper portion of the spinal cord, exercises a remarkable influence in increasing the tonicity and contractility of the uterine fibre. 2. That in the action so excited and sustained we have a powerful and reliable means of moderating and controlling *Uterine Hæmorrhage*, whether accidental or unavoidable, and of simultaneously accelerating the dilatation of the os uteri, and the general progress of labour. 3. That the current of electricity may be continued for a lengthened period,

* Med. Zeitung, June 16, 1841.
† Lancet, Sept. 12, 1860.
‡ Annals of Medicine, vol. viii. p. 339.
§ Lond. Med. Phys. Journ. vol. xiv. p. 527.
‖ Dict. Pract. Med., vol. i. p. 813.
¶ Prov. Journ., Dec. 1844.
** Proceedings of Med.-Chir. Soc., Feb. 23, 1858.

when required, without any appreciable pain or inconvenience to the mother, or danger to the child.

3090. *In Asphyxia*, it has been employed, but with varying results. It has also been proposed in *Tetanus* and *Hydrophobia*, but no reliance is to be placed on its power in these cases.

3091. *In certain forms of Hysteria or Moral Insanity*, Dr. Laycock * considers that the prophylactic and curative treatment consists in the persevering and systematic application of electro-galvanism to the abdominal and pelvic regions, in combination with the internal use of Tar.

3092. *In Constipation*, Dr. Cummin† considers that there are very few cases which will resist the action of electro-galvanism; and his experience in the use of this remedy warrants him in stating, that, except in constipation arising from organic or mechanical causes, this agent will not only act as an aperient, but will give such tone to the muscular and mucous tunics as in time will lead to the natural discharge of their functions. At the same time, he advises the internal use of Tar. Dr. Terzi‡ also found galvanism very effectual in constipation depending upon paralysis of the nerves of the intestines. A case of *Ileus*, accompanied by Fœcal Vomiting, which was successfully treated by the application of galvanism to the mucous surface of the intestine, is related by Mr. Finny.§ In this case, one sponge, with the metallic handle to which it was attached, was passed up the rectum two or three inches, whilst the other sponge was applied to the abdominal walls. The effect was immediate; the constipation was at once relieved, and the patient recovered from an apparently hopeless condition.

3093. *In poisoning by Opium, Chloroform, &c.; in drowning, and other forms of Asphyxia*, galvanism is a most valuable means of stimulating the patient, and restoring respiration and circulation.

3094. Electro-Puncture, or Galvano-Puncture, consists in introducing two acupuncture needles, as advised in Acupuncture, and connecting them with the poles of a weak voltaic battery. The great advantage of this over the ordinary mode of application is the facility it affords of especially operating upon certain muscles or nerves, instead of the electric fluid being expended upon the skin and the surrounding tissues. The current of electricity should not be kept up continuously, but intermitted in order to produce a succession of small shocks.

3095. *Therapeutic Uses. In Paraplegia and Hemiplegia*, it

* Med. Times, July 20, 1850.
† Med. Gaz., Dec. 7, 1849.
‡ Brit. For. Med. Rev., April 1850.
§ Dublin Quart. Journ. of Med. Science, Nov. 1864.

proved very successful in the hands of Dr. Terzi.* He also found it effectual *in facial Paralysis.*

3096. *In Bronchocele,* it was employed successfully by Dr. Terzi.† The number of plates employed amounted to sixteen or twenty, and upon the intervening discs of cloth, moistened in an acid or saline solution, a little Tincture of Iodine was dropped. The tumour at first became painful, and increased in size, but soon after diminished.

3097. *In Sciatica, Tic Douloureux, and some forms of Chronic Rheumatism,* electro-puncture has been found serviceable. It should be applied only during the intermissions of pain.

3098. *In ununited Fractures,* it was employed in three cases by Dr. Lente,‡ of New York. To be efficacious, the needles should be passed down to the ends of the bones: the simple application of the poles to the soft parts adjacent to the fracture appears to have little influence.

3099. *In Aneurism,* electro-puncture has lately been much used in France and Germany. It being a well-ascertained fact that galvanism or electricity has the power of coagulating fibrine, it is employed with a view of coagulating the blood within the aneurismal tumour. Dr. Althaus insists on the necessity of employing continuous galvanic currents, and not induction currents, in the electric treatment of aneurisms and varices, and that the positive pole at which alone the clot is produced should alone be made to act on the blood. The employment of galvano-puncture in these cases, however, is not unfrequently attended by phlebitis, and other ill effects, and its efficacy is far from being well established. Dr. Althaus thinks that, in the treatment of *Varices,* galvanization would be more frequently successful than in that of Aneurisms.

3100. EMETICS are agents which excite vomiting. This definition requires modification, as there are many substances clearly in themselves not emetics, which will, under certain circumstances, act as such. Thus Castor Oil or Copaiba, from their nauseous taste, will excite violent vomiting in some persons; disgusting sights and smells have a similar effect; and almost any substance, taken in excess, will give rise to the same action. The following observations are not directed to these, but only to those medicinal substances which uniformly and in moderate doses produce vomiting. The medicines chiefly employed as emetics are Tartar Emetic, Ipecacuanha, Emetin, the Sulphates of Zinc and Copper, and Mustard. There are others of minor

* Brit. For. Med. Rev., April 1850.
† Ibid.
‡ Amer. Journ. of Med. Sciences. April 1851.

importance, as Squills, Tobacco, Chamomile Flowers, Ammonia, Salt, &c.

The objects for which they are employed. 1. To remove from the stomach any crude indigestible matters, or poisonous substances. 2. To depress the vascular and muscular systems. 3. To promote the biliary, cutaneous, and pulmonary secretions. 4. To promote the absorption of other medicines, internally administered. 5. To check internal hæmorrhage. 6. To dislodge foreign bodies inpacted in the throat or air-passages.

Contra-indications. 1. Diseases of the heart and large vessels. 2. Aneurism of the aorta. 3. Predisposition to Apoplexy and cerebral affections in general. 4. Hernia. 5. Prolapsus of the rectum or uterus. 6. The latter months of pregnancy. 7. An irritable state of the stomach. 8. Great debility. 9. Gastritis.

Their occasional ill effects are:—1. Abortion. 2. Hernia. 3. Apoplexy, and comatose affections. 4. Hæmoptysis. 5. Suffocation. 6. Prolapsus of the uterus or rectum. 7. Rupture of the abdominal muscles. These effects, though rare, indicate the necessity of caution in their exhibition.

Their action is promoted by drinking plentifully of warm diluents, and by tickling the fauces with a feather. Opium impedes their action.

3101. *Observations on the use of Emetics.* 1. In childhood and infancy, emetics are generally well borne, and prove highly serviceable in the diseases of early life. In them, generally speaking, Ipecacuanha is preferable to Tartar Emetic; the latter occasionally causing great depression. Sydenham reprobates the use of antimonial emetics before the eighth year.

2. Emetics differ much in the rapidity of their action. Thus the Sulphates of Zinc and Copper act almost immediately after they have been swallowed, and should, in consequence, be employed whenever it is of importance to unload the stomach rapidly, as in cases of poisoning. Tartar Emetic acts more slowly than these substances, but quicker than Ipecacuanha or Mustard; but it should be remembered that a great difference exists in individuals, with regard to the facility with which vomiting is induced.

3. The relative amount of subsequent depression which the various emetics induce, is a point of practical importance. Of the whole range of emetics, Tobacco produces the greatest and most permanent depression; so much so, indeed, that nothing but extreme circumstances can justify its employment. Tartar Emetic is more depressing in its action than Ipecacuanha; and this, in its turn, more so than the Sulphates of Zinc or Copper, and Mustard. The last, indeed, hardly produces any perceptible depression, and is consequently well suited for debilitated subjects, in atonic gout, drunkenness, &c.

4. The degree of nausea and depression which certain emetics produce is not proportionate to their emetic effect. This is very evident if we compare the operation of Tobacco with that of Mustard, or Tartar Emetic with the Sulphate of Copper.

5. The amount of diaphoresis which they produce merits attention. Tartar Emetic and Ipecacuanha cause copious perspiration, whilst the Sulphates of Zinc and Copper excite comparatively little.

6. An habitual use of emetics is highly injurious, rendering the stomach so susceptible that ordinary diet cannot be retained, and debilitating the system generally. No means are so likely to produce dyspepsia. It is a practice which cannot be too strongly condemned.

7. The period of the day best adapted for their administration is the evening, when the tendency to sleep which supervenes can be readily indulged. If, however, the urgency of the case requires it, there is no period of the day when they may not be given.

8. When the vomiting is too violent or too long continued, the means best adapted for checking it are effervescing draughts, with a few drops of T. Opii, or Hydrocyanic Acid, or Creasote. (Dr. Joy.) A mustard plaster to the epigastrium is sometimes effectual.

3102. *Therapeutic Uses. Fevers. In Intermittent Fevers*, an emetic given at the commencement of the cold stage, was formerly regarded as a sure means of cutting the disease short. Though they will not do this, emetics, when not otherwise contra-indicated, appear to exercise a beneficial influence in mitigating the subsequent severity of the attack, not only unloading the stomach of crude and ill-digested food, but lowering the vascular excitement, and determining to the skin. Their use is almost entirely limited to the outset of the fever, and should, on no account, even then, be employed, if there be any great amount of gastric irritation. The same remark applies to *Remittent and Continued Fevers;* but in *Yellow Fever*, the experience of the best authorities agrees in condemning their employment. In all fevers the great danger which attends the use of emetics is, that they may induce an irritable state of the stomach, which is but little under the control of medicines. In the severe fevers of the Mediterranean, Sir William Burnett* found them highly injurious. When employed, Ipecacuanha should be preferred. *In Typhus Fever*, an emetic, observes Dr. Murchison,† is often of undoubted service in relieving symptoms during the first five or six days of the

* On the Mediterranean Fever, 2nd ed., p. 33.

† On Fevers, &c., 1862, p. 263.

disease. Its good effects are often most marked in mitigating or removing the headache and general pains, in reducing the temperature, quenching the thirst, and quieting any gastric disturbance. It is only contra-indicated when the patient is unusually weak, or when the disease has advanced beyond the first week. The same remarks apply to *Typhoid* (*Enteric*) *Fever*. Here they ought never to be given after the twelfth day; for when the peritoneum is laid bare by intestinal ulcers, the act of vomiting may induce perforation.

3103. *In Gastric Remittent Fever*, if the child is seen early, and there is reason to suppose that improper food has been the cause of the attack, an emetic will often be found at once to relieve the symptoms. It is only applicable to the earliest stage. (Dr. Locock.*)

3104. *In Scarlet Fever*, at the commencement of the disease, an emetic may be administered with great advantage. It appears to exercise a favourable influence on the course of the fever subsequently. Drs. Withering, Willan, Burns, Bateman, Tweedie, &c., agree in approving of emetics in the early stage. They prove more efficacious in children than in adults.

3105. *In Puerperal Fever*, emetics are advocated by Doulcet, Richter, Tonnelli, Cruveilhier, and others. Dr. Ferguson considers that the cases in which they are chiefly useful are those in which the liver is implicated, and biliary derangement is a prominent symptom. Dr. Gooch advises caution when the face is pale, the skin cool, and the pulse small and weak. When used, they should only be as auxiliaries, and their utility is chiefly confined to the earliest stages. They entirely failed in the hands of Dr. Dewees and Dr. Clarke.

3106. *Disease of the Brain, &c. In Insanity*, emetics are advised by Esquirol, Rush, Foville, Cox, Wake, and others. They are undoubtedly useful when derangements of the stomach exist. Dr. Prichard† observes that emetics are sometimes useful during a state of furious excitement, and produce calmness and a mitigation of violence. Sometimes, under these circumstances, he adds, their exhibition is followed by a restoration of sleep and tranquillity. Maniacs bear large doses of antimony without effect. Considerable judgment is necessary in selecting cases in which emetics may be administered with safety. *In Puerperal Insanity*, when gastric disorder exists in a marked manner, Dr. Mackenzie‡ considers that an emetic may be given with safety and advantage.

3107. *In Delirium Tremens*, emetics were employed by Stoll, in 1778. They have more recently been reintroduced into

* Lib. of Med., vol. i.
† Cyc. Pract. Med., vol. ii. p. 860.
‡ Lond. Journ. of Med., June 1851.

American and English practice; but, on the whole, the treatment appears to be less efficacious than that of opiates, excepting at the very commencement of the attack, or when the stomach may be supposed to contain a large quantity of spirituous fluid.

3108. *In Puerperal and other Convulsions, also in Delirium and Apoplexy, clearly attributable to the introduction into the stomach of crude, indigestible, or poisonous substances*, an emetic, by removing the exciting cause, is of essential benefit. Much care and discrimination, however, are required in its employment.

3109. *In Epilepsy and Epileptoid Affections*, Dr. Marshall Hall* considers that an emetic, given either when an attack is imminent, as ascertained by premonitory signs, or when, without these signs, we may be anticipating the attacks generally, will ward off a threatened attack.

3110. *Diseases of the Chest and Throat. In Phthisis*, the value of emetics has been strongly insisted upon by Morton, Simmons, Parr, Robinson, Reid, Marryat, De Vittis, and more recently by Dr. Marshall Hughes,† who reports favourably of them in the early stages, but others have failed to recognise their value, and the practice has fallen into disuse.

3111. *In Chronic Bronchitis*, where no fever, no remarkable dyspnœa, or acceleration of the pulse is present, and where the bronchial secretion is very copious, you will be able to produce very good effects by giving an emetic every night, for two or three nights, before you begin with remedies calculated to arrest the super-secretion of the lung. It is productive of a double advantage in such cases: a large quantity of mucus is discharged from the stomach and lungs, expectoration is rendered more easy, the tongue becomes clean, and the appetite is improved. (Dr. Graves.‡) *In the Bronchitis of Typhus Fever*, an emetic of Mustard, observes Dr. Murchison,§ is said to act sometimes like a charm, by promoting copious expectoration and allowing free ingress of air into the bronchial tubes, so as to save the patient from impending suffocation. (Lyons.)

3112. *In Spasmodic Asthma*, an emetic of Ipecacuanha has been used with evident advantage in some cases (see IPECACUANHA); and the same treatment has been found useful in the early stage of *Hooping-Cough*.

3113. *In Croup*, emetics prove highly serviceable. In the first or acute stage, an antimonial or Ipecacuanha emetic should be promptly given, with a view of reducing the vascular excitement, and of preventing the accumulation of effused matter in the air-

* See Ranking's Half-Yearly Abstract, vol. xiii. p. 30, 1851.

† Guy's Hosp. Reports, vol. xi.

‡ Clin. Lect., vol. ii. p. 16.

§ On Fevers, &c., 1862, p. 283.

passages. In the third stage, emetics should be given to procure the discharge of the false membrane, &c., from the trachea. In the third stage, Dr. Dewees prefers Senega to all other emetics; whilst others employ Squills, Infusion of Chamomile, &c. In the second stage, they are useless or injurious.

3114. *In Cynanche Tonsillaris*, an emetic given at the very outset of the disorder, may sometimes succeed in cutting it short. It also occasionally is useful in the more advanced stages. (See Zinci Sulphas.)

3115. *Diseases of the Abdominal Viscera. In Cholera*, the value of emetics has been variously estimated. On reference to Mr. Ross's table (sect. 1414), it will be seen that the lowest rate of mortality was that in which emetics of Antimony and Chloride of Sodium were employed. With reference to the first of these (Tartar Emetic), the numbers are too small to allow us to form a correct estimate; and with regard to the latter, the free use of cold water, taken *ad libitum*, may materially have influenced the result. Experience has failed to confirm the high opinion at one time entertained of their utility, and they have fallen into comparative disuse.

3116. *In Diarrhœa and Dysentery*, an emetic of Ipecacuanha, repeated once or twice according to circumstances, is often effectual in arresting the discharge. (See Ipecacuanha.)

3117. *Other Diseases. In Erysipelas*, emetics are advised by Liston, Chelius, Desault, Nunneley, Donellan, &c. Their good effect is limited to the early stage, and they are chiefly indicated when there is derangement of the digestive organs. Mr. Nunneley objects to the use of Tartar Emetic.

3118. *In Neuralgia arising from Dyspepsia*, Mr. Hunt advises the exhibition of an emetic, followed by an aperient draught of Rhubarb, &c., previous to the use of Quinine or Arsenic. In those cases in which the paroxysm is regularly intermittent, an emetic should be given an hour before its expected arrival. (Mr. Hunt.)

3119. *In Hysteria*, an emetic of Ipecacuanha, given when a paroxysm is impending, often has the effect of altogether preventing it. (Conolly.)

3120. *In the Plague*, emetics are highly spoken of by Clot Bey, if given in the earliest stage of the disease, not only unloading the stomach, but determining freely to the surface.

3121. *In Hospital Gangrene*, emetics in the early stage are advised by Pouteau, Dussassoy, Briggs, J. Thompson, Hennen, and others. They prove chiefly useful, however, as observed by Mr. Blackadder, when the stomach is foul and loaded.

3122. *In Aphonia, arising from an Atonic or Paralytic state of the Larynx*, an emetic of Ipecacuanha, or the Sulphate of Copper,

or the Sulphate of Zinc, followed by tonic and stimulant medicines, sometimes proves useful.

3123. *In Gout*, at the commencement of an attack, emetics sometimes mitigate the attack, whilst in other instances they have little or no effect upon it. They ought to be employed with great caution. If the tongue be much loaded, and if heartburn, acrid eructations, or nausea be complained of, neither pain nor tenderness of the epigastrium being present, an emetic will generally be of service. But if vascular depletion be indicated, it should precede the exhibition of the emetic. (Dr. Copland.*)

3124. *Otalgia* is sometimes immediately relieved by the exhibition of an emetic; and in *Atonic Deafness, depending upon accumulation of mucus in the Eustachian Tube*, the same measure is attended with benefit. But in both these cases, emetics are inadmissible when much cerebral congestion or plethora is present. Under such circumstances, they may prove highly injurious.

3125. *In Urticaria, arising from the ingestion of noxious and indigestible substances* (*as poisonous fish, &c.*), no time should be lost in obtaining the ejection of the offending matters. For this purpose the Sulphates of Zinc or Copper are best suited. A simple cathartic should afterwards be administered. (E. Wilson.†) *In Chronic Urticaria*, a course of emetics, one every other morning, to be taken fasting, is sometimes effectual in removing the disease.

3126. EMMENAGOGUES are medicines or agents which tend to establish or restore a healthy condition of the menstrual secretion. They may be conveniently divided into three classes, viz., direct, indirect, and constitutional.

1. *Direct Emmenagogues* comprise all those agents which act directly or specifically upon the uterus. Of these, the chief are electricity, which stimulates the nerves of that organ; and Ergot of Rye, which acts directly on its muscular fibres. Leeches to the os uteri, which relieve any existing local congestion, and thus permit the secreting vessels to perform their functions; and stimulant applications, as the Nitrate of Silver, Liq. Ammoniæ, &c., belong to the same class. Amongst the minor remedies may be mentioned Savine, Borax, Cinnamon, and Chenopodium.

2. *Indirect Emmenagogues* include a large number of powerful cathartics, as Aloes; and some diuretics, as Potassæ Nitras, which stimulate the pelvic organs in the neighbourhood of the

* Dict. Pract. Med., vol. ii. p. 47. † Diseases of the Skin, p. 158.

uterus, the stimulant action being conveyed, by sympathy, to the latter organ. Their efficacy is extremely doubtful. In some cases, perhaps, where the suppression of the secretion depends upon congestion of the vessels of the uterus, a hydragogue cathartic, or powerful diuretic, may act favourably as a derivative; but not unfrequently they are productive, not only of no benefit, but of much mischief.

3. *Constitutional Emmenagogues* are those which establish a healthy tone and condition of the general system, and restore a natural action of all secreting organs, the uterus included. Those most commonly employed, and on which most reliance is to be placed, are, the salts of Iron. They are chiefly indicated when Amenorrhœa is combined with anæmia or debility, and operate by restoring the deficient constituents in the blood.

3127. *Observations on their Use.* 1. Emmenagogues should be used with great caution, if at all, to bring on the first menstrual discharge. In the majority of cases, when the uterus is properly and fully developed, the catamenia will appear; and the application of stimulants to that organ, before it is capable of performing its functions, may prove highly prejudicial. So long as the general health remains good, the late appearance of the menses does not call for medical aid.

2. They should be given with extreme caution about that time of life when the menses decline naturally. The uterus has completed its functions, and unnaturally stimulating it to more work than nature has allotted to it, will only increase the constitutional disturbance generally present at that period, without delaying the final cessation of the discharge.

3. They should never be given during pregnancy, or when there is malignant disease of the uterus.

4. When one emmenagogue fails, another will frequently succeed; and a combination often proves more effectual than when they are given singly.

5. Emmenagogues operate the most certainly and effectually, if administered at those periods at which the menstrual discharge should naturally appear.

3128. Enema, called also Clyster, Glyster, and Lavement, a liquid thrown by means of a proper instrument (per rectum) into the large intestines.

The objects for which they are employed. 1. To remove from the rectum and lower intestines accumulated fæces, scybala, and other irritating matters. 2. To allay irritation of the pelvic organs, as the bladder, uterus, &c. 3. To remove constipation, particu-

larly when depending upon stricture or intus-susception. 4. To introduce medicinal substances into the system, when from any cause they cannot be administered by mouth.

3129. *Observations on their use.* 1. Carefully oil the tube or pipe which is to be introduced into the anus, in order to prevent any injury being done to the soft parts; and care should be taken that the pipe be introduced an inch or two within the sphincter ani.

2. The quantity of fluid employed requires attention. For a child of from one to five years, 3 or 4 ounces is the proper quantity; from ten to fifteen years, 6 or 8 ounces; for an adult, 12 or 16 ounces. These quantities answer well for ordinary enemas; but in some diseases, *e.g.* dysentery, 4 or even 6 pints may be thrown by means of a long tube into the sigmoid flexure of the colon; and, on the other hand, when the enema is intended to remain any length of time in the rectum, in order to allow the medicinal substances which it may contain to be absorbed into the system, the quantity should not exceed 1 or 2 ounces for an adult, or a drachm or two drachms for children.

3. If the fluid be injected slowly, or with moderate force, it is more likely to be retained than if thrown in with considerable impulse.

4. All medicinal substances, particularly those of an irritating kind, should be well diluted in some mucilaginous fluid, or they may give rise to inflammation of the tissues with which they come in contact.

5. The forcible injection of simple air or medicated vapour, per rectum, was formerly recommended, but is now almost entirely and justly abandoned. The introduction of Tobacco smoke, formerly advised, is a most dangerous remedy.

6. The form of instrument used does not much signify. If used with proper caution, an enema is perfectly safe, and a valuable resource in many forms of disease, in children as well as in adults.

3130. *Therapeutic Uses. In Constipation, from whatever cause arising,* enemas may be used with advantage; but it must be remembered that they are only temporary measures, removing an existing overcharged state of the bowels, but incapable of establishing that healthy condition of the peristaltic action, upon which a natural daily discharge of the fæces depends. This must be done by tonics, alteratives, and other remedies. *In the Constipation of Hysterical Women,* Assafœtida may be advantageously added to the enema. *In that depending upon Spasm of the Rectum,* tepid-water enemas, with soap, &c., are very useful, temporarily relaxing the spasm, and bringing away the accumulated fæces.

3131. *In Diarrhœa,* enemas often prove most serviceable; they

may be either simply mucilaginous, or containing opiates, Ipecacuanha, &c. In a case which recently came under my care, the Diarrhœa had continued several weeks, and had resisted the employment of almost every other means; but, by the use of enemas, a cure was effected in a very short period. The first enema, consisting of about two pints of demulcent fluid, brought away a large number of small and very hardened scybala. Immediate relief followed their expulsion; and the remaining irritation, which had been caused by the presence of these hardened bodies, yielded entirely to small glysters, containing Opium and Ipecacuanha.

3132. *In Dysentery*, the employment of large enemas (four or six pints thrown into the transverse colon, by means of a long flexible tube introduced per rectum) was first proposed by Dr. O'Beirne.* The rationale of this treatment, its mode of application, together with some obstacles to its employment, are fully considered when speaking of Dr. Hare's treatment in the article Argenti Nitras (which see). They may doubtless prove highly useful in removing accumulated fæces and irritant matters from the colon, and have proved successful in the hands of Dr. Irving,† Dr. M'Pherson,‡ &c. Small enemas (f℥iss.—f℥ij.), containing opiates, Ipecacuanha, &c., often prove useful in allaying the tenesmus and tormina. *In other Abdominal Inflammations, in Peritonitis, Peri-hepatitis, Nephritis, Abdominal Typhus, &c.*, Dr. Eisenmann § speaks highly of the value of enemas of three or four quarts of water at blood-heat. The first injection generally returns in a short time, bringing with it much fæcal matter. The second, which is given immediately after the return of the first, is generally retained without difficulty. He considers that he has often seen cases of the above inflammation cut short by the use of these enemas.

3133. *In Intus-susception of the Bowels*, Cullen proposed the employment of large warm-water enemas. The flexible tube of a stomach-pump introduced per rectum, is to be passed up six or seven inches, in the manner advised in Dysentery (see sect. 319); and several pints of water, as hot as the patient can bear it without pain, are to be injected. The warmth, the moisture, and the pressure of the fluid, sometimes cause relaxation of the surrounding tissues, and a reduction of the affected part is effected. It, however, often fails. *In Colica Pictonum*, hot-water enemas have also been found serviceable. (See Hot Bath.)

3134. *In Cholera*, enemas offer an effectual means of introducing medicines into the system. They may contain salines or

* New Views of Defæcation, &c.

† Edin. Med. Surg. Journ., Jan. 1849.

‡ On Bengal Dysentery, Calcutta, 1850.

§ Bull. de Thérap., lv. p. 542.

Turpentine, and should be repeated every hour or half-hour. However frequently repeated, or in whatever quantity, the fluid becomes absorbed into the system; as in those who die after their employment, although the fluid has not been returned per anum, none of it is to be found in the intestines. They should only be regarded as auxiliary to other treatment.

3135. *Against Worms*, Martinet advises the employment of enemas in the following manner, to be repeated at short intervals. The first is a common aperient one, to unload the intestines of fæcal matter; the second, a strong solution of common salt, or vinegar and water, which should be retained as long as possible; the third should consist of three or four large tablespoonfuls of Olive Oil or thick mucilaginous decoction of Marsh Mallow or Rice, to mitigate any uneasiness of the rectum. This treatment is stated to be very effectual, but can be chiefly useful only when *A. Vermiculares* are present.

3136. *In Acute Peritonitis, Enteritis, and Inflammatory states of the Intestinal Canal*, warm, mucilaginous enemas are in all cases preferable to strong or irritating purgatives.

3137. *In Cerebral Affections, Apoplexy, Insanity, &c.*, terebinthinate and other enemas prove highly serviceable. They not only remove the scybala which so often accumulate in the intestines of maniacal patients, but operate as powerful revulsives. *In Fevers attended with Cerebral Complication*, Prof. Graves found Tartar Emetic, administered in this manner, very serviceable.

3138. *In Affections of the Genito-urinary Organs*, enemas containing opiates prove in the highest degree beneficial. *In Subacute Ovaritis*, warm-water enemas, simple or medicated, are strongly recommended by Dr. Tilt. The enema should be retained as long as possible. *In Rigidity of the Os Uteri*, warm-water enemas, and *in Uterine Hæmorrhage*, enemas containing iced water, may be used with advantage. (See WATER.)

3139. *In Hysteria*, connected with worms, terebinthinate enemas may be employed with the best results. A cold-water enema has been found to check a violent paroxysm of hysteria.

3140. *In Hæmorrhoids or Piles*, the daily practice of injecting Oss. of cold water proves highly serviceable. Under the use of this simple remedy, and a few grains of Rhubarb daily, I have seen long-standing cases yield completely.

3141. EXPECTORANTS are medicines or agents which increase the secretion of bronchial mucus, and promote its subsequent expulsion. They are divided into two classes, Topical and General.

1. *Topical Expectorants* include all those agents, the vapour of which, when inhaled, acts directly on the mucous lining mem-

brane of the air-passages. They are of two kinds:—1, Stimulants, as Iodine, Chlorine, Benzoic, and Acetic Acids, Tar, &c., the vapours of which stimulate the pulmonary exhalents; and 2, Sedatives, as Conium, Hyoscyamus, Stramonium, and the vapour of hot water, which allay irritability, relieve the constriction of the vessels, and thereby facilitate expectoration.

2. *General Expectorants* are medicines which are taken into the stomach, and which, after being absorbed into the system, operate on the lungs and their membranes. They comprise medicines of very diversified characters and qualities; and which are each adapted to some particular cases or stages of pulmonary disease. This class comprises—Nauseants, as Ipecacuanha and Tartar Emetic, which are chiefly applicable to those acute and subacute cases in which much vascular excitement exists; Tonics, as Senega, which prove useful in the advanced stages of Pneumonia and Pleuro-pneumonia; and Stimulants, as Ammoniacum, Assafœtida, and the gum resins, which prove of the highest service in chronic cases of Asthma, Catarrh, &c. There is yet another subdivision, viz., Alkalies, sometimes termed Liquefacients, from their property of rendering the fluids of the body more liquid. As expectorants, they lessen the viscidity of the mucous secretion, and allow it to be more easily expelled from the air-passages. The Sesquicarbonate of Ammonia may be taken as a good example.

Their action is promoted—1, by keeping the surface of the body moderately warm; 2, by emetics; 3, by the copious use of diluents; 4, by avoiding agents which increase the secretion of urine, or immoderate action of the bowels. *Their action is retarded*—1, by opiates; 2, by diuretics; 3, by purgatives; 4, by keeping the surface of the body cool.

3142. *Observations on their use.* 1. Expectorants of any kind are of little use, and may prove injurious during the early stages of acute sthenic inflammation, Croup excepted.

2. In such cases, depletion and antiphlogistics should precede their use; and then nauseants are preferable to the other classes.

3. Stimulant expectorants are contra-indicated in all cases where sthenic inflammation exists.

4. Stimulant topical expectorants, as the vapour of Iodine, should be discontinued if they produce much irritation.

5. Nauseant expectorants are inadvisable in purely nervous Asthma, when the patient is much debilitated, or the disease assumes a typhoid character.

6. The vapour of hot water is one of the best expectorants when it answers at all; but to some persons it proves irritating, and they derive no comfort from it. (Dr. Watson.)

GALVANISM. See ELECTRICITY.

3143. Gargles are fluids intended to be retained in the mouth for a certain time, and to be thrown in contact with the uvula, tonsils, &c. For this purpose, the head should be thrown back, and the liquid agitated with the air issuing from the larynx. This is the usual method of application; but Sir J. Murray proposes another mode, which in many cases will be found preferable. He suggests drawing the gargle through the nostrils; it thus passes along the posterior nares, and reaches the pharynx, touching in its course the whole mucous surface. Sir J. Murray justly observes, that there are often untoward secretions of mucus, and sometimes an injected, relaxed, or turgid state of the coats and vessels of the posterior nasal passages; these troublesome conditions extend down the fauces, and cause sore throats, with an inflamed appearance over the glands and the entire surfaces. These conditions cannot, he observes, be removed by gargles applied in the usual manner through the mouth; but if the gargle be drawn through the nostrils, the source of irritation is healed, and the continuous surfaces soon partake of the same salutary influence.

Gargles may be made stimulant, astringent, or sedative, as the circumstances of the case may require. They are purely local in their action, and are chiefly employed in relaxed or ulcerated states of the tonsils, fauces, &c.

They should never be employed whilst active inflammation of the throat is present; for then they not only cause great pain, but increase the urgency of all the symptoms. In chronic cases, they prove of great service.

3144. *Therapeutic Uses.* Gargles are chiefly employed as topical applications in various affections of the throat, in Cynanche Tonsillaris and Maligna, in ulceration of the fauces, in relaxation of the uvula, &c. None of these, however, require separate notice in this place, having been considered more particularly in the body of this work.

3145. *In Deafness* which originates in acute or chronic disease of the throat, gargles are amongst the most useful means which can be resorted to. And when it is considered how very often inflammations of the ear, and deafness, are caused by lesions of the Eustachian tube, proceeding from the throat and posterior nares, especially during the various forms of Cynanche, and in the course of eruptive fevers, the importance of these means cannot be overlooked. These applications should be suited to the nature of the affection of the throat; in the more sthenic states of inflammatory action, they should be refrigerant and contain Nitrate of Potash, or Hydrochlorate of Ammonia. or Biborate of Soda; in the more asthenic forms of the affection, they may be astringent, tonic, and stimulant, and may contain

either of these, or some other detergent substances. When the occlusion of the guttural extremity of the Eustachian tube with mucus is suspected, these salts, especially the last, will be of service; and when the deafness is in a great measure nervous, the Tincture of Capsicum may be added to these, or to any other form of gargle that may be preferred. *In Deafness connected with Secondary Syphilis*, the Bichloride of Mercury may be employed, in the form of gargle, with advantage. (Dr. Copland.*)

3146. Ice. A valuable therapeutic agent, extensively employed of late years, both internally and externally. When given internally, it proves sedative, refrigerant, and astringent; and, as such, is very serviceable in fevers, inflammations, and acute hæmorrhage. Externally applied, Dr. Arnott† regards Ice in the threefold character of a remedy, a prophylactic, and an anæsthetic. 1. As a remedy, it is effectual in many diseases of the nervous and vascular system. In external inflammations, it is speedy, certain, safe, and agreeable. 2. The prophylactic virtue of congelation is the power it possesses of preventing inflammation of those surfaces which have been subjected to its influence. Wounds, he states, have invariably appeared to heal more speedily after the application of congelation than under the usual circumstances; probably on account of the absence of any injurious degree of inflammation. 3. As an anæsthetic, its excellence consists in its power of producing local anæsthesia, while the consciousness of the patient remains undisturbed, and also especially in its perfect safety. Dr. Arnott quotes several cases in support of those opinions (see *infra*). Caution, however, is necessary in its use. If applied for a short period, the congelation or frozen condition of the parts which it induces may not only be not injurious, but beneficial; but if this agent be applied too suddenly, or be too long continued, it may induce gangrene. It may conveniently be employed, pounded, mixed with an equal quantity of common salt, and inclosed in a bag of gauze or some other thin material. This constitutes an ice poultice, and it should be applied for one, two, or three minutes, or until congelation of the subjacent tissues is effected; it should then be discontinued. It is an application which requires discrimination and caution.

3147. For the purpose of controlling the circulation through the nervous centres, the external application of heat and cold to the spine has been advocated by Dr. John Chapman.‡ He claims to have discovered that a controlling power over the circulation of blood in the brain, in the spinal cord, in the ganglia of the

* Dict. Pract. Med., vol. ii. p. 163.
† Med. Gaz., March 1849.
‡ Med. Times and Gaz., July 18, 1863; and Year-Book of Sydenham Soc.

sympathetic system, and through their agency in all the organs of the body, can be exerted by means of applying ice and hot water to different parts of the back. In order to lessen the excito-motor power of the cord, he applies ice in an india-rubber bag over the particular portion of the cord on which he wishes to act. The vitality of the cord may be measured by applying ice and hot water alternately. In order to obtain fuller and more equable circulation through the brain, he applies ice to the neck and between the scapulæ. To affect the thoracic and abdominal viscera, the applications are made to the dorsal and lumbar regions. The diseases in which Dr. Chapman has found this plan of treatment successful are *Affections of the Nervous System*, particularly various forms of *Epilepsy and Paralysis; Uterine affections*, especially *Disordered Menstruation*, *Leucorrhœa*, and *Procidentia Uteri; Constipation* and *Diarrhœa; coldness of the surface, particularly coldness of the feet*. Dr. Chapman's ingenious papers on the subject will well repay perusal, but his method of treatment requires to be confirmed by further experiment and observation before it can be generally received.

Contra-indications to the use of Ice. 1. Old age. 2. Debility, whether constitutional, or induced by disease. 3. Coma, with a feeble pulse. 4. Advanced stages of disease. Its powerfully-sedative influence might, in these cases, overwhelm the powers of life. (Dr. Bennett.)

3148. *Therapeutic Uses.* *In Insanity*, the application of ice to the shaven scalp is sometimes productive of excellent effects. M. Foville employed a cap containing pounded ice, which was closely fitted to the head of the patient, while the body was immersed in a hot bath for two or three hours. This proceeding was renewed twice or thrice daily, according to the intensity of the symptoms. On adopting it only once a day, he found the tranquillity produced by it followed, in some instances, by increased agitation; but on repeating the bath, with the ice constantly applied to the head, it induced sleep and tranquillity in many instances of obstinate restlessness and agitation, and was the apparent means of recovery in several acute cases. (Dr. Prichard.*)

3149. *In Inflammation of the Brain and its Membranes*, the application of ice, in the manner recommended in the last section, is attended with the best effects. The situation of the cap should be changed every minute or two, both to cool every part of the head, and to prevent the injurious effects which might result from a too protracted application to one spot. By this mode of procedure, observes Dr. Hope,† its use may be continued for half an hour or more at a time; when, if the head feel cool,

* Cyc. Pract. Med., vol. ii. p. 859. † Lib. of Med., vol. ii. p. 56.

evaporating lotions may be substituted, until a return of heat and flushing demands the re-application of the ice. It must be used with caution in the aged, in coma, and in the advanced stages of the disease.

3150. *In Delirium Tremens*, ice to the shaven scalp, as advised in Insanity, has in some instances an excellent effect, producing sleep and tranquillity, when all other means fail. It should, however, be used with extreme caution, as, if the patient be much debilitated, or the application be long continued, or repeated too frequently, it may depress the vital powers to a dangerous extent. *In Acute Hydrocephalus*, ice is too powerful a depressant for ordinary cases; but *cold* water, or evaporating lotions to the head, prove most serviceable.

3151. *In Headaches, arising from a morbid state of the nerves* of some portion of the forehead and scalp, the freezing mixture (ice and salt) is strongly recommended by Dr. Arnott.* "In no disease," he observes, "have the efficiency, safety, and speedy operation of congelation been more conspicuous than in this. It is particularly serviceable when the headache is combined with much heat of the integuments, and when the symptoms appear to threaten secondary local inflammation."

3152. *In Apoplexy*, ice applied to the head, at the same time that the feet are placed in hot water, is a measure occasionally productive of great benefit. Lallemand† states, that the cold acts locally in diminishing the congestion of the head, without greatly depressing the vital powers. Great caution, however, is necessary in its use, particularly in debilitated or old subjects.

3153. *In the Convulsions of Infancy and Childhood*, Dr. R. B. Todd speaks highly of the external application of ice. It should be powdered, and placed in bags along the whole length of the spine. It will often succeed when other remedies fail. *In Puerperal Convulsions*, ice to the head, and mustard poultices to the feet, applied simultaneously, have been found highly serviceable.

3154. *In Tetanus*, Dr. Todd‡ states that he has seen great benefit from applying ice along the whole length of the spine. The bladders or bags containing the ice should be frequently renewed; otherwise they become elevated to the temperature of the body, which is an occurrence that should be obviated. When the cold fairly reaches the spinal cord, which it will do if the ice be perseveringly applied, its influence is shown by a marked depression of the action of the heart, which tends to general depression of the vascular system; if this depression becomes great, the use of the ice must be suspended. During

* Op. cit.
† Lancet, April 30, 1842.
‡ Med. Gaz., May 4, 1849.

its application nutritious and slightly stimulant substances should be frequently given.

3155. *In External Inflammations, as of the Skin, Mouth, and Throat*, Dr. Arnott* advocates the application of ice, so as to produce congelation of the surface. He regards it as a certain remedy, because, whenever congelation is produced, inflammation ceases; as speedy, because congelation instantly arrests inflammation; as safe, because, in the hundreds of cases in which it has been employed, it has not been productive of any injury or untoward effect; and, finally, as agreeable, because it instantly benumbs the part, and relieves the pain which is attendant on inflammation. *In Erysipelas*, he found it most effectual; and he details three severe cases in which it appeared to exercise a most salutary influence. He advises it to be pounded with salt, and applied immediately to the inflamed surface, by means of a sponge or cloth, until the skin becomes white and hard, or, in other words, frozen. Although the cases detailed appear at once to have yielded to its use, and that, too, without any ill effects, it must be remembered that the experience of some of the highest authorities is opposed to cold applications. Liston† and Pearson‡ express themselves strongly against them, and Alibert declares that to apply "cold is madness." Their remarks, however, applied chiefly to cold lotions, and not to congelation in the manner advised by Dr. Arnott.

3156. *In Prurigo Pudendi Muliebris*, Dr. Arnott found the congelation of the surface, by means of ice, of the greatest service.

3157. *Burns.* Dr. Jobert,§ of the Hospital St. Louis, Paris, treats burns by the application of bladders filled with ice, and placed on the injured surface. The results he states to be most satisfactory, the gangrenous reaction being speedily limited, and the suppuration very much diminished. The patients are much relieved by the application; and when the burns are very extensive, cold baths are also used. By these means he states tha visceral inflammations are prevented.

3158. *In Cholera*, ice has been the remedy the most trusted to in the hospitals of Vienna and Berlin, and it is stated to prove highly efficacious. On reference to the table in sect. 1414, it appears that the mortality, when ice alone was employed, was 30 per cent., a very low rate compared with cases in which stimulants and opiates were employed. It relieves, in a remarkable manner, the burning heat at the pit of the stomach and the intolerable thirst, arrests the vomiting, and contributes greatly to excite reaction. It is a remedy of the highest promise,

* Op. cit.
† Elements of Surgery, p. 77.
‡ Pract. Surgery, p. 217.
§ Med. Times, vol. xvii. p. 259.

and should be employed whenever practicable, stimulants and opiates being, at the same time, strictly prohibited. It appears, from the foregoing table, that when stimulants were conjoined with ice, the mortality rose from 30 to 50 per cent.*

3159. *In Internal Hæmorrhage*, ice may be given with great advantage; it seems to act in the threefold character of refrigerant, sedative, and astringent. *In Hæmatemesis*, it proves particularly useful, as it comes in immediate contact with, and tends to constringe, the bleeding vessels. *In Hæmorrhage from the Mouth, Throat, or Nostrils*, ice, applied in a solid form to the bleeding vessel or surface, proves an efficient styptic.

3160. *In the passage of Renal Calculi*, Dr. Prout† states, that in protracted cases of suffering, he has occasionally known the greatest relief obtained by the application of pounded ice to the region of the kidney. It is chiefly applicable when the calculus is composed of the Oxalate of Lime, or the phosphates, and should not be employed in plethoric, gouty individuals, labouring under lithic acid calculi. M. Bricheteau‡ found, that if applied to the epigastrium, it afforded great relief *in the passage of Gall Stones*, when other remedies had failed.

3161. *In Aneurism of the Aorta*, ice has been applied with a view of contracting all the tissues, and promoting the coagulation of blood within the sac. The pain which it occasions often renders a continuance of its use inadmissible. (Dr. Hope.§)

3162. *To produce Uterine Contractions*, Dr. Mackall,‖ of Maryland (U.S.), states that he has, for many years, employed ice, and that in no single case has he been disappointed in its action, or witnessed the slightest ill effects from its administration. The cases in which he found it the most useful are, 1, *in protracted Labours proceeding from Atony of the Uterus;* 2, *in retention of the Placenta from the same cause;* 3, *in alarming Hæmorrhage after delivery;* and 4, *in Abortion.* In the last case he considers it invaluable. In short, whenever the firm contraction of the uterus is desirable, that object, he states, will be effected by ice, pounded and swallowed freely, in considerable quantities.

3163. *In Strangulated Hernia*, the application of cold or ice to the tumour was first proposed by Wilmer, and has been highly spoken of by B. Bell and others. It occasionally proves effectual, but more frequently fails. Care must be taken that it be not so applied as to freeze the scrotum, and bring on sloughing. In large, old herniæ, the application of ice is often attended with remarkable efficacy; and in other cases, as Sir A. Cooper has

* See Mr. Ross's Lectures on Cholera, Med. Times, vol. xix. p. 107.

† On Stomach and Renal Diseases, p. 212.

‡ Mém. de la Soc. Méd., vol. ix. p. 194.

§ Diseases of the Heart, 3rd Ed.

‖ Monthly Retrospect, April 1847.

explained, if it does not completely succeed, it arrests the progress of the symptoms. (Mr. S. Cooper.*)

3164. *In Ileus*, Dr. Brandis,† of Copenhagen, successfully treated ten cases by the application of cloths, dipped in iced water, to the abdomen, at the same time that he gave iced water as a drink. Laxative and anti-spasmodic medicines were also administered by mouth, and in the form of enema.

3165. *In the Hiccough which occurs early in the progress of Typhus and other Fevers*, Dr. Graves‡ advises iced water in small quantities, leeches to the epigastrium, and bland aperient injections. In the hiccough of the later stages, swallowing a small piece of ice is sometimes effectual; but unless it speedily affords relief, it should not be persevered in.

3166. Inhalation, in its therapeutic sense, is the act of drawing air impregnated with medicinal substances, into the air-passages. From the earliest times the inhalation of vapours has been a recognised means of medication. In the treatment of *Bronchitis, Asthma, and other Pulmonary Affections*, the inhalation of watery vapour, impregnated with Stramonium, Hyoscyamus, Camphor, and substances of the same class, has been found a useful means of allaying spasm and irritability of the bronchial tubes. Recently the inhalation of pulverized fluids, *i. e.* solutions of various medicinal substances broken into a fine spray, has been introduced. This method was first employed in 1857 by Sales Girons, who found it beneficial in *Pharyngitis, Laryngitis, Bronchitis, and Tuberculosis*. Since then it has been frequently tried on the Continent. Dr. Smyly,§ of the Meath Hospital, states that fluid impregnated with substances not otherwise volatile, can be broken into such fine spray that the solution may be inhaled without inconvenience, and that the medicinal agent may thus be brought in direct contact with the bronchial tubes, even as far as their small ramifications. The instrument used by Dr. Smyly is made by M. Krohne after M. Lewin's. "It consists of a glass chamber, covered with an air-tight brass cap. In this cap a glass tube is fixed, almost touching the bottom of the glass vessel. The end outside the brass cap, is drawn out to a capillary opening, and bent at an angle. Into another part of the cap an air-pump is screwed, to press air into the chamber, thus forcing any fluid introduced into the chamber through the capillary opening with very great force. A glass cylinder, open at both ends, and having a small round hole in the side, is fixed by means of a

* Dict. Pract. Surg., p. 709.
† Nouv. Journ. de Méd., vol. v. p. 89.
‡ Clin. Lect. vol. i. p. 135.
§ Dublin Quarterly Review, Nov. 1864.

metal rod at a short distance, so that the stream from the capillary opening may enter the hole in the side. Opposite this hole a metal button is fixed, on which the stream strikes, and is broken into a fine spray, which falls out of the cylinder at each end. The patient is then placed opposite one end of the glass cylinder, and by breathing draws a considerable portion of the spray into his air-passages." Dr. Smyly relates a case of obstinate laryngeal affection which was completely cured by the inhalation of a pulverized solution of Nitrate of Silver (gr. xv. ad Aq. fl. oz. j.). Solutions of Tannin and other substances have also been employed in the same manner by Dr. M. Mackenzie.

3167. Injection. A fluid thrown, by means of a syringe, into a passage or cavity of the body. They may be conveniently considered with reference to the locality to which they are applied.

3168. *Injections into the Urethra.* The only or principal disease in which these are employed is *Gonorrhœa;* and even here much difference of opinion exists as to their safety and efficacy, one class denouncing them as the origin of Orchitis, inflammation of the bladder, stricture, &c., and another class regarding them as safe and efficacious. The fact of the matter appears to be, that if a strong solution (Argent. Nit. gr. x., Aq. fl. oz. j.) of a salt be injected at the very outset of the disease, before scalding in making water has come on, the danger is comparatively slight; although, it must be admitted, that even under these favourable circumstances, untoward accidents do occasionally occur. If, on the other hand, the disease has progressed and inflammatory action be established, the same injection is fraught with the greatest danger. When, however, the inflammation has subsided, and the disease passes into a chronic state, injections, weaker than that above mentioned, may be had recourse to with advantage.

Urethral injections may be divided into Irritant, Sedative, Emollient, and Astringent. *Irritant Injections*, as solutions of Corrosive Sublimate, Nitrate of Silver, &c., should never, observes Mr. Samuel Cooper, be used when there is considerable inflammation present; nor should they be used when the inflammation has spread beyond the specific disease; nor when the disease ceasing quickly, these parts have become sore; nor when the perineum is very susceptible of inflammation; nor when there is a tendency in the bladder to irritation, known by the frequency of passing urine. In mild cases and in constitutions which are not irritable, these injections often succeed, and remove the disease immediately. *Sedative Injections*, composed of Opium or Liq. Plumbi, give generally great relief in irritable

constitutions, but they do nothing towards effecting a cure of the disease. The same observation applies to *Emollient Injections*, *Astringent Injections* are often very serviceable in the third stage of Gonorrhœa, or when it is degenerating into a gleet. Decoctions of Oak-bark, Galls, &c., or solutions of Alum, form the principal of these.

3169. *Observations on their Use.* 1. An injection should never be used so strong as to cause anything like severe pain in the urethra. (Graves.*)

2. Always desire the patient before using it to void a little urine, in order to clear the urethra of any mucus, &c., which would otherwise prevent the fluid coming in contact with the lining membrane.

3. The point of the syringe must be carefully introduced, at least half an inch within the lips of the urethra; and care should be taken that the point be not hitched in a fold of the membrane lining the urethra.

4. When the point of the syringe is withdrawn, the lips of the urethra should be kept closed with the finger and thumb for two or three minutes, when the fluid may be allowed to escape.

5. In employing caustic injections at the commencement of an attack of Gonorrhœa, Mr. Acton† directs that the patient should not pass urine immediately after their use, and that he should lie down for half an hour or so.

6. It is of importance to remember that the Sulphates of Copper, Zinc, and Alum, which coagulate albumen when used in moderate proportions, re-dissolve it when employed too strong, and may thus tend to keep up the discharge. The Nitrate of Silver in small quantities coagulates the albumen; in large ones, it combines with it, and cauterizes the tissues.

7. Injections should not be trusted to alone for the cure of Gonorrhœa; Copaiba, Cubebs, aperients, and an antiphlogistic regimen should be used as auxiliaries.

8. When one kind of injection fails, another often succeeds.

9. A glass syringe is always preferable to a metal one, as the latter is apt to form compounds with the solution used, and to become coated with dirt.

3170. *Injections into the Vagina.* These are chiefly employed in Leucorrhœa and Menorrhagia, and in some diseases of the uterus. They frequently fail, however, from the non-observance of a few plain rules, as pointed out by Sir C. Locock:‡—

1. In order to obtain its full effect, the quantity injected should not be under half a pint, three or four times a day; and it should

* Clin. Lect., p. 392, vol. ii.: from which this and the three following rules are quoted.

† Brit. For. Med.-Chir. Rev., July 1851.

‡ Cyc. Pract. Med., vol. iii. p. 38.

be so employed that the whole of the lining membrane of the vagina is subjected to its action.

2. Ascertain as far as possible the cause of the discharge for which you are employing these remedies: if there be heat, excoriation, and any local inflammatory action, sedative injections, particularly the Liq. Plumbi Diacet., are the most applicable; if the discharge be muco-purulent, or simply of a thin mucous character, depending upon a relaxed state of the lining membrane of the vagina, astringent injections, containing Alum, Galls, &c., will be found most beneficial.

3. The vagina should always be washed out with cold water after an astringent injection, particularly one containing Alum; as otherwise the discharge will sometimes become coagulated, and, remaining in the vagina, will keep up the irritation, and aggravate the symptoms. This is a point to which sufficient attention is not paid.

4. Every injection will fail to produce anything beyond temporary relief, when the discharge arises from an overloaded state of the rectum, or from the presence of ascarides in that viscus; consequently the use of an enema, either plain or with Oil of Turpentine, should always precede that of vaginal injections.

5. Astringent injections into the vagina should not be used, if there be tenderness on pressure, or a sense of weight in the pelvis. They should at once be discontinued if during their use these symptoms arise, as they indicate a degree of uterine congestion. A case illustrative of the danger of their indiscriminate use is related by Mr. W. Cooke.* In this case the vagina was so contracted as hardly to admit the finger; was intensely hot and painful, with much fever. The coagulated albumen adhered so tenaciously to the os and cervix uteri, that it was with difficulty removed.

6. In Menorrhagia, astringent injections should rarely be used during the first few days of the menstrual period, as they often produce uterine spasm; but when coagula are passed, either alone or mixed with the catamenial fluid, the secretory function is either partially or entirely suspended, and injections may then be highly useful. To the above advice Dr. Ashwell† adds the following directions:—When the injection is to be administered, the patient should lie down, the pelvis should be raised by a cushion placed under the hips, and the fluid should be retained for ten or fifteen minutes; to insure which a nurse should hold a napkin, accurately applied to the parts.

7. In some organic diseases of the uterus and its appendages, more permanent relief is derived from the introduction of medicated balls containing Opium, &c., into the vagina, than from

* Lancet, May 11, 1850.

† On Diseases of Females, p. 139.

injections containing the same substances. Fœtid discharges often much improve under the use of injections containing the Chloride of Lime or Soda.

3171. *Injections into the Uterine Cavity* were first employed by Drs. Robert and Vidol de Cassis, some years since; but they were abandoned from a fear of producing Peritonitis, by the passage of the injection into the abdomen, through the Fallopian tubes. Prof. Strohl, of Strasburg, again brought them into notice in 1848, in the treatment of Uterine Catarrh. In order to obviate the apprehended danger, he directs the injection to be used very slowly, and through a long caoutchouc catheter, introduced about three lines within the os uteri. This instrument should not fill up completely the orifice of the womb, in order that the injected fluid may be permitted to return immediately, thus exercising no pressure against the apertures of the Fallopian ducts. In twenty-nine cases in which he employed injections of Liq. Plumb., or a solution of the Iodide of Iron, there were no ill effects beyond some slight hysterical symptoms. The majority of British practitioners are opposed to the use of this remedy; and Dr. Ashwell considers that it is fraught with danger.

3172. *Injections into the Bladder* are occasionally used *in Chronic Cystitis*, and also with a view of their acting *as solvents of Calculi*. They may be injected into the bladder by means of a small syringe attached to a catheter with a double passage. It is rarely advisable to use strong injections; but Mr. Acton* states that, in obstinate cases of *Chronic Cystitis*, he injects the whole of the following solution: — ℞ Argent. Nit. ʒij., Aq. Dest. fʒiv., M. ft. inject. Having passed a gum elastic catheter into the bladder, and having drawn off the urine, he injects the fluid by means of a glass syringe, accurately fitted to the catheter. He adds that he has rarely, or never, observed any ill consequences from its use. Vesical injections are contra-indicated if any active inflammation is present, and should not ordinarily be allowed to remain in the bladder longer than a few seconds. Their use requires great caution. When the acids enter into the composition of the injection, a golden catheter should be employed.

3173. *Injections into the Nasal Passages* are chiefly employed in *Catarrhal states of the mucous lining Membrane*, and in *Epistaxis*. The most effectual manner of employing them is to place the patient in an upright or slightly stooping position, and the head being thrown forwards and downwards on the chest, the fluid should be slowly injected. The patient should then be directed to draw in the air through his nostrils, and to hold his

* Lond. Journ. of Med., July 1851.

breath as long as he can. By this means the fluid may be retained in contact with the mucous surfaces for a short period.

3174. *Injections into the Meatus Auditorius Externus* are frequently and often injudiciously employed in *Otorrhœa*, *Otalgia*, and other affections of the ear. They require great caution, as, if employed in improper cases, they are productive of serious mischief. They should never be of a strength to cause pain, should generally be used tepid, should be injected slowly, without force, and should never be employed if acute inflammation or perforation of the membrana tympani exist.

3175. *Injections into Serous Cavities* were formerly considered highly dangerous; but of late years, several instances have been recorded in which strong solutions have been injected even into the peritoneal cavity, not only with safety, but advantage. They are almost daily used in the radical cure of Hydrocele; and when injected into the joints, they do not appear to prove injurious. (See IODINE, sects. 1620, 1621, and 1622.) For the different modes of employing them, the reader is referred to modern works on Surgery, and to the above sections.

3176. INSUFFLATION. The act of blowing a vapour or powder into some cavity, or on some particular part of the body; *e.g.*, air blown into the mouths of new-born infants, to excite the respiratory function. In modern practice the term is chiefly applied to the following mode of applying solid substances to the larynx, &c., as proposed by Trousseau and Belloc.* Alum, the Subnitrate of Bismuth, &c., having been reduced to *impalpable* powders, are put into one end of a reed or glass tube, and the other is carried back as far as possible into the mouth. After a full expiration, the patient closes his lips around the tube, and inspires suddenly and forcibly through it, by which some of the powder is carried into the larynx and trachea. The cough which is excited should be restrained as much as possible, to prevent the too speedy expulsion of the medicine. The Subnitrate of Bismuth may be used pure. Calomel should be diluted with 12, Red Precipitate, the Sulphates of Zinc and Copper with 36, Alum with 2, Acetate of Lead with 7, and the Nitrate of Silver with 22, 36, or 72 times, their respective weights of sugar. The powders should be impalpably fine, as the least roughness excites such efforts to cough, as to insure the expulsion of the powder. They are chiefly used in affections of the larynx and trachea. (Dr. Williams.†)

3177. ISSUES and SETONS, considered as therapeutic agents,

* Trait. de la Phthisie Laryngée, 8vo, Paris, 1837.

† Lib. of Med., vol. i.

closely resemble one another in their operation and effects, and may be conveniently considered together. They are mentioned in the earliest records of medicine, and their use doubtless arose from observing how constantly nature, by the formation of natural issues, as ulcers, &c., relieves the system from a tendency to certain diseases; how much these natural issues mitigated the severity of the symptoms, when the disease is established; and how frequently serious, and even fatal effects follow their removal, either spontaneously or by artificial means. In employing these agents, we closely follow nature, and the benefit derived from them is very great, particularly when compared with the very little expense to the strength of the constitution which they occasion. They are purely chronic remedies, suitable only to chronic diseases, in which they appear to act chiefly as derivatives, and partly perhaps also as evacuants.

3178. *Observations on their use.* 1. In acute diseases, the benefit from setons or issues is very small; their use is chiefly confined to chronic diseases.

2. Never place them over projecting points of bone, or over the bellies of muscles, or in any part which is much interfered with by muscular action, or they may degenerate into ill-conditioned ulcers.

3. Cleanliness is of the utmost importance. Issues should be dressed at least once daily.

4. Care is necessary that the sore does not discharge too profusely; a drachm of pus in the day is the utmost that can be borne by most constitutions.

5. Great care is necessary in healing an issue or seton when once established. It should never be done suddenly.

3179. *Therapeutic Uses. In Chronic Pulmonary Affections, particularly in Asthma, Angina Pectoris, Chronic Bronchitis, and Catarrh,* an issue at the nape of the neck is often effectual in mitigating or removing the symptoms. *In Phthisis,* caustic issues immediately below one or both clavicles, even when the disease has far advanced, have been warmly advocated by M. Bricheteau.* Dr. Graves† thinks highly of setons in the same position, in incipient Phthisis.

3180. *In Chronic Laryngitis,* a seton or issue at the upper part of the chest is advised by Dr. Williams.‡

3181. *In Chronic Inflammation of the Heart or its Membranes,* much relief is obtained from the use of an issue in the præcordial region. *Violent Palpitations,* consequent on the healing of an old ulcer or long-established cutaneous disease, often disappear

* Med.-Chir. Rev., vol. lx. p. 599.
† Clin. Lect., p. 104.
‡ Lib. of Med., vol. iii. p. 50.

under the establishment of a seton or issue, near the seat of the original disease.

3182. *In some Chronic Cerebral and Spinal Affections*, they prove most useful. *Where there exists a pre-disposition to Apoplexy*, an issue at the back of the neck is sufficient to ward off an attack. This is shown by the fact, that the sudden healing of an artificial or natural issue has been followed by its appearance. (Prichard.*) The remark is equally applicable to *Paralysis*. A long issue or seton applied to different parts of the spine has sometimes been found beneficial in *Paralysis Agitans*. *Headaches* of the most obstinate character, occurring in robust subjects, will often yield to an issue at the nape of the neck.

3183. *In Plethora, and in Epilepsy connected with Plethora*, issues or setons at the nape of the neck often mitigate the severity of the symptoms, in a remarkable manner. Their benefit, however, is far from uniform.

3184. *In many Chronic Affections of the Eye*, these agents are of great service. *In Chronic Opacities of the Cornea*, Mr. Lawrence† advises, after other remedies fail, the establishment of an issue or seton on the temple. *In Chronic Strumous Ophthalmia*, an issue on the arm is recommended by Mr. Welbank. *In Amaurosis following the healing of an old Ulcer or Cutaneous Eruption*, the plan that has been found the most successful is counter-irritation by means of an issue or seton. (Middlemore.‡) *In Ulcers of the Cornea*, Mr. Critchett§ states that he has seen issues, inserted into the temple and kept there for months, of the most essential service.

3185. *In Subacute and Chronic Dropsy*, the establishment of an issue has occasionally been found of great benefit; but much discrimination is necessary in selecting the cases in which it is likely to prove useful. Dr. Copland‖ advises that the issue should be inserted on the side opposite to that where uneasiness is complained of, or at some distance from the most affected part. *In Anasarca depending upon, or connected with, Disease of the Kidneys*, Dr. Venables¶ found great benefit from an issue on the loins, cupping in that region being employed at the same time. Dr. Prout found the same measure of great service *in the Chronic stage of Granular Disease of the Kidneys*. Much benefit has also been found to follow the insertion of an issue on the chest *in Hydrothorax and Hydropericardium*. The best locality for it, in those cases, is the margin of the false ribs. *In Ovarian and Encysted Dropsy*, setons or issues have been advised, but their utility is very doubtful.

* Cyc. Pract. Med., vol. ii. p. 279.
† On Diseases of the Eye, p. 371.
‡ On Diseases of the Eye, vol. ii.
§ Lancet, July 15, 1854.
‖ Dict. Pract. Med., vol. i. p. 613.
¶ Lond. Med. Gaz., vol. v. p. 397.

3186. *In Deafness*, a seton or issue at the nape of the neck or on the arm, is occasionally useful as a derivative; but they are inferior in efficacy to blisters behind the ears, and are not only useless, but even injurious in nervous deafness, or in that caused by excessive discharges, &c.

3187. *In Chronic Inflammation, Congestion, and in some other Chronic Affections of the Liver*, an issue or seton over the region of that organ is often productive of the greatest benefit. I have known the best effects follow their establishment, and cannot but consider that they are too much neglected in this class of diseases. Dr. Graves* bears testimony to their value in these cases.

3188. *In Chronic Enlargements and Inflammations of the Joints*, issues in the neighbourhood of, *not upon*, the joint are powerful and beneficial remedies. *In Morbus Coxarius*, Albers attributes great efficacy to them.

3189. *In Bronchocele*, which resists the use of Iodine, it has been proposed to pass a seton through the enlarged gland. Several successful cases are recorded. Dupuytren† thought highly of the practice, although he justly observes, that a seton is not to be regarded as a certain cure for every bronchocele. Great caution is necessary clearly to distinguish the character of the tumour, previous to employing a seton, as it is evident that if it be of a malignant nature, the worst effects would result. Sloughing has in some instances followed its employment; and, in others, it has produced no sensible improvement.

3190. *In Ununited Fractures*, setons form the most successful treatment. According to the tables of Mr. Norris,‡ of 46 cases treated by seton, 36 were cured, 3 partially so, 5 derived no benefit, 2 died.

3191. *Some obstinate Cutaneous Affections, Sycosis, Impetigo, Psoriasis, &c.*, which resist all other remedies, disappear rapidly on the establishment of a seton or issue. Dr. Graves § gives an excellent piece of advice on this subject. When the disease is of long standing, always insert an issue in the arm, before you attempt a cure. "I have seen," he adds, "water on the brain, and other fatal consequences, from the neglect of this precaution."

3192. Leeches, Hirudines, are very commonly employed as agents for local blood-letting. In many local or chronic forms of inflammation and in diseases of infants, leeches are preferable to cupping or general bleeding; possessing the advantage of being easily applied on the seat of disease, or in its immediate

* Clin. Lect., vols. i. and ii.
† Clinique Chir., t. iv. p. 470.
‡ Ranking's Abstract, vol. xiii. p. 291, 1851.
§ Clin. Lect., vol. ii. p. 356.

vicinity. Local blood-letting is employed for the relief of local inflammations and congestions: 1, where the condition of the patient and the gravity of the affection does not warrant general blood-letting; 2, as an auxiliary to general blood-letting. In the modern treatment of disease, the local abstraction of blood is employed in many cases where venæsection would have been formerly used. Cupping should be preferred to leeches,—1, when we desire to draw blood rapidly; 2, when we desire accurately to ascertain the quantity of blood drawn; 3, when it is desirable to make an impression on the system.

3193. *Observations on the use of Leeches.* 1. The capacity of leeches for drawing blood differs considerably. The common English or speckled kind draws from f℥j. to f℥ij., not including that which flows subsequently. The Indian leech draws from f℥j. to f℥iij., and the Hungarian variety is supposed to draw even more.

2. In order to make leeches bite readily, thoroughly cleanse the surface of the skin with soap and water, and then dry it. This is particularly necessary if an embrocation has been previously employed. If they will not bite, one of the following plans may be tried:—1, remove the leech from the water and roll it for fifteen or twenty minutes in a warm dry cloth; 2, lower the temperature of the surface of the skin; 3, smear the surface with cream, or sugared milk; 4, roll the leech in porter; 5, make a puncture with a lancet, and smear the blood over the surface: this is often effectual. It should also be remembered that the fumes of sulphur, vinegar, or tobacco in a room will often effectually prevent leeches from biting at all.

3. To make leeches bite on particular spots, take a piece of blotting-paper and make in it as many small holes as there are leeches, the holes corresponding with the spots on which it is desired to apply the leeches; they are then to be covered over with a tumbler. The animals, finding themselves on a rough surface, creep about till they come to the openings in the paper, when they instantly bite the exposed points of the skin. The blotting-paper is easily removed by being moistened.

4. Leeches should never be applied to the tonsils, orifices of the uterus, rectum, &c., excepting by means of a glass properly constructed for the purpose, otherwise they may get beyond reach and do much mischief. Should, however, such an accident occur, a strong solution of common salt, either by mouth, or enema, or injection, as the case may require, will be sufficient to dislodge them.

5. Great care is necessary in the application of leeches to infants and young children. The loss of a small quantity of blood produces a more sensible effect upon them than a proportionate quantity upon adults; and it should be borne in mind that, on

account of the thinness of the skin and the greater vascularity of the subjacent parts, a leech will abstract a greater quantity of blood from a young child than from an adult. Three leeches, bleeding well, are a full bleeding for a child one year old, labouring under acute inflammation; and if one be added for each year of the child's life up to five, a fair average may be obtained. Dr. Ramsbotham suggests, that when it is necessary to apply leeches to children, they should, if possible, be placed on some part of the body where the bone is near the surface, so that counter-pressure may be conveniently made, in case of excessive hæmorrhage. Dr. Garrod advises that leeches should not be applied to an infant towards evening, unless quite unavoidable, lest hæmorrhage continue unchecked through the night.

6. There is more danger than is usually imagined in applying leeches a second time. There can be but little doubt that some diseases, particularly Syphilis, and also puerperal fevers, have been transmitted to others by the injudicious and too hasty application of leeches, which have been previously employed in these diseases. Too little attention is usually paid to this point.

7. To remove leeches, if they do not drop off by themselves (which they generally do in fifteen or twenty minutes), sprinkle them with a little cold water, or a little vinegar and water, or powdered sugar.

8. To promote bleeding from leech-bites, apply fomentations or warm dry cloths, which should be changed frequently. The application of cupping-glasses over the bites greatly promotes the flow of blood.

9. To check hæmorrhage from leech-bites, expose them to cold air, carefully removing coagula, or make continued and firm pressure with the finger; or, if these fail, apply styptics, as Matico, Alum, &c. (See Index—*Hæmorrhage from Leech-bites.*)

10. In order to preserve leeches, add a piece of Charcoal to the water, and do not change it too frequently—once or twice a week at the furthest. When they are to be taken a long voyage, they should be carried in well-charred casks.*

* *M. Lisfranc's Rules for the Application of Leeches.*—1. The cicatrices of leech-bites being often very apparent, we ought to refrain, if possible, from applying them to parts habitually exposed. 2. In children and females of delicate skin, the course of large veins should be avoided, especially in the neck. 3. Leeches on the eyelids produce unseemly ecchymosis, and often an œdematous erysipelas; they should be placed instead on the temples, along the roots of the hair, or behind the ears (?). 4. Leeches to the inner surface of the eyelids are ineffectual as evacuants, and the bites prove injuriously irritant; consequently scarifications are here preferable. 5. In inflammation of the fauces, leeches should be placed over the mastoid processes, or behind them; there the results are not seen, and moderate pressure readily commands

3194. *Therapeutic Uses. In many cases of Acute Inflammation and in most Subacute and Chronic Inflammations*, leeches are preferable to general blood-letting. In some acute local inflammations, *e.g.* Purulent Ophthalmia, the application of leeches in the neighbourhood of the disease proves highly serviceable; and even when more active treatment appears necessary, they are valuable auxiliaries to general blood-letting and other antiphlogistic measures. In diseases of infants leeches are a valuable resource, and may, in most cases, be employed with safety and advantage. *In Acute Carditis and Pericarditis, in Peritonitis, Pleuritis, and Active Inflammation of the Liver*, relays of leeches over the diseased part should, as a rule, never be omitted.

3195. *In Acute Gastritis*, Dr. Stokes* observes, that there are few things more striking in the practice of medicine than the effect of leeches in this disease. The vomiting and burning heat are often relieved as by a charm; and we have, he adds, seen violent cough and delirium subside under the same circumstances. In adults, from 20 to 40 leeches may be safely employed. In children, the number must be regulated by the age of the child, &c., and followed by fomentations or poultices, &c. Dr. Symonds prefers relays of small numbers of leeches, in preference to a large number at one time.

3196. *In Acute Laryngitis*, leeches applied to the throat are valuable auxiliaries to general treatment, but they are of little service beyond reducing the local heat and swelling. *In Chronic Laryngitis*, leeches to the sides of the throat may be applied with advantage, and repeated in small numbers every two or three

bleeding. 6. In applying leeches to the epigastrium, let none fasten over the costal cartilages, otherwise the movement of these is likely to entail a troublesome bleeding. 7. In leeching a part where there is much subcutaneous fat, but little blood will flow; in such circumstances it will be prudent to increase the number of leeches, or aid them by venæsection. 8. Do not place leeches where there are many subcutaneous nerves; the pain will be great; erysipelas may result. For example, in leeching the forearm, prefer the dorsal to the palmar aspect. 9. Leeches should not be applied to the mucous membrane of the vulva, nor to the immediate neighbourhood of the rectum; the bites are apt to degenerate into troublesome ulcers; applied round the margin, they are equally potent as remedial agents. 10. The scrotum, prepuce, and skin of the penis should not be directly leeched; the pain is excessive; inflammation and gangrene have resulted; when the leeches are placed behind the scrotum, on the raphé, the result is in every way satisfactory. 11. By leeching the skin investing the mamma great pain is occasioned, and erysipelas not unfrequently results; the surrounding integument is the preferable site. 12. If possible, leeching of inflamed skin ought to be avoided. 13. Leech-bites on a syphilitic bubo are liable (occasionally) to ulcerate and assume a venereal character. 14. Do not leech a fractured limb at the site of the injury. 15. Do not apply leeches *to* a tumour of doubtful character, but *near* it; otherwise, should the swelling prove carcinomatous, the leech-bites may accelerate the open or advanced condition of that disease. (Brit. and For. Med. Rev., No. xxvii. p. 3.)

* Cyc. Pract. Med., vol. ii. p. 325.

days, for some length of time. *In Tonsillitis*, leeches applied, by means of a proper glass, to the tonsils are productive of the best effects, according to the experience of Crampton and others. (Dr. Williams.*)

3197. *In Nephritis and Nephralgia*, the local abstraction of blood from the surface over the kidneys, is a valuable auxiliary to general blood-letting, the hip-bath, &c. (Dr. Watson.†)

3198. *In the Pneumonia of Children*, the abstraction of blood by leeches on the chest, is often productive of the best effects. They cannot be applied too early in the disease.

3199. *In Subacute Ovaritis*, leeches (10 or 12) applied to the inguinal regions are advised by Dr. Tilt.‡ Sufficient blood should be drawn to make an impression on the system. Medicated enemas and frictions should be subsequently applied. *In acute cases*, general blood-letting may be required.

3200. *In Congestion and Inflammation of the Uterus*, leeches to the cervix uteri are eminently serviceable. From three to six may be applied every two or three days until the symptoms yield.§ Dr. H. Bennett, however, justly observes that their constant application sometimes does more harm than good, by drawing blood *to* the uterus.

3201. *In Acute Dysentery*, leeching the abdominal surface is often attended with the best effects. The application of leeches to the verge of the anus often proves, in the highest degree, beneficial, by removing the congested state of the hæmorrhoidal vessels. On this point, Dr. Mayne,‖ in his account of the Acute Dysentery epidemic in Dublin, observes that greater relief was obtained from 12 leeches to the verge of the anus than from triple the number placed on the abdomen. The hæmorrhoidal veins are, in this manner, he observes, most effectually unloaded, and at the same time the distressing tormina and tenesmus are mitigated with great certainty. This fully coincides with my own experience, having in numerous cases seen the most marked benefit from leeches thus applied. *In Acute Febrile Diarrhœa*, the same treatment proves, in the highest degree, beneficial.

3202. *In Congestion of the Brain, in threatened Apoplexy or Paralysis arising from the suppression of an habitual discharge, as from Piles*, a few leeches to the verge of the anus often afford more immediate and permanent relief than three times the number applied to the temples or other part of the body. They are equally applicable if the threatened attack arise from suppression of the menses, but in such cases the leeches should be applied to the inner side of the thighs. In reference to this mode of treat-

* Lib. of Med., vol. iii. p. 50, et seq.
† Lectures, vol. ii. p. 568.
‡ Lancet, March and April, 1849.
§ Dr. Simpson, Lib. of Med., vol. iv. p. 331.
‖ Dub. Quart. Journ., May 1849.

ment, Dr. Holland* observes, that he knows of no mode in which a given quantity of blood can be removed with equal good effect. *In Congestive Headaches*, leeches may be applied with advantage to the temples, or in the situation advised above, or to the crown of the head.

3203. *In Acute Hydrocephalus*, the local abstraction of blood by leeches sometimes proves serviceable. Dr. West judiciously directs that they should be placed on the crown of the head rather than on the temples. They are inadmissible when the little patient is much debilitated.

3204. *In Dropsy after Scarlatina*, Dr. Behrend† advises the application of leeches (6 to 10) to the lumbar region. They serve to diminish the congestion of the kidneys, so as to prevent the exudation of plastic matter, and to restore diuresis. Saline diuretics greatly aid their beneficial operation. They are also recommended by Dr. R. B. Todd.

3205. *In Amenorrhœa*, leeches, applied by means of a proper glass to the os uteri, a few days previous to the period when the catamenia should appear, are eminently serviceable. Dr. Ashwell‡ states that he found this a very efficacious method of reproducing the discharge. If it be not practicable to apply leeches to the os uteri, they may be applied to the pubes, or the inner sides of the thigh. Dr. D. Davis,§ who also bears testimony to the general efficacy of this treatment, mentions that it is far from novel, having been used by Lanzoni ‖ in 1691.

3206. *In Menorrhagia*, Sir C. Locock¶ particularly recommends, as an adjunct to other treatment, the frequent application of a few leeches to the anus. "Even in debilitated and exhausted constitutions," he adds, "this remedy, when carefully watched, may be safely applied, and relief will often be very rapidly manifested."

3207. *In Leucorrhœa*, when it assumes an acute or subacute character, Dr. Churchill** directs the abstraction of blood, by cupping on the sacrum or loins, or by applying a number of leeches below both groins, or to the vulva, when the catamenia are scanty or suppressed; and, in some cases, a repetition of the depletion is necessary. *In Congestive and Inflammatory Dysmenorrhœa*, much benefit is often derived from the application of leeches to the vulva, or the inner sides of the thighs.

3208. *In Chronic Congestion of the Alimentary Canal and Enlargement of the Liver*, Dr. Graves†† was in the habit of applying two leeches every second day to the verge of the anus; and repeating

* Med. Notes and Reflections, p. 49.
† Lond. Journ. of Med., Aug. 1849.
‡ Diseases peculiar to Women.
§ Obstetric Medicine, p. 231.
‖ Ephem. German. dic ii. Ann. 10, 1691.
¶ Cyc. Pract. Med., vol. iii. p. 110.
** Diseases of Females.
†† Clin. Lect., vol. ii. p. 251.

these sometimes as often as fifteen times. This treatment he found productive of much benefit.

3209. *In Neuralgia*, attended with inflammatory action or much vascular excitement, particularly when it obstinately resists the application of anodynes and other local measures, leeches placed over the seat of pain often afford immediate relief; but even if they fail in this, they place the system in a favourable condition for the use of other remedies.

3210. *In Pruritus Scroti, Pruritus Ani, and Pruritus Pudendi Muliebris*, leeches applied around the affected part, and followed by anodyne fomentations, are often productive of much relief. Remedies which had failed to make any impression previous to the use of the leeches, are often very effectual after their application. *Sycosis, Psoriasis, and other obstinate Skin Diseases*, are sometimes benefited by the application of leeches to the sound skin in the neighbourhood of the disease. *In Inflammation of the Skin and subjacent Tissues, during the formation of Abscesses*, when the part is hot, swollen, and tense, leeches applied to the affected part are often effectual in mitigating the inflammation and in affording relief. *In Phlegmasia Dolens*, relays of leeches (20 to 30) to the inner side of the limb prove serviceable.

3211. *In Hooping-Cough*, Dr. Pidduck* states, that for thirty years he has adopted the following treatment (originally proposed by the late Dr. Sandars) with such success that he cannot recollect a single failure in the uncomplicated form of this disease. It consists in applying leeches immediately over the junction of the occiput and the atlas vertebra, to relieve the congestion of the vessels surrounding the origin of the pneumogastric nerve; and the subsequent application of a sinapism or blister between the shoulders. The rule to be observed is one leech for each year of the child's age, from one to six. These, and the sinapism, are to be repeated every three or four days, if necessary.

3212. Narcotics are medicines which cause stupor or sleep, this state being preceded by a certain amount of vascular and cerebral excitement. Other names have been given to this class of medicines, as Soporifics, Hypnotics, Cerebro-spinants, and Sedatives; but the last named are distinguished from narcotics by the absence of a primary state of excitement in their operation. Under the head of Narcotics are comprised Opium, Stramonium, Belladonna, Conium, Hyoscyamus, Cannabis, and Camphor.

The Objects for which they are employed. 1, to procure sleep; 2, to allay pain or spasm; 3, to arrest inordinate secretion; 4, to control inflammatory action or irritation.

Modus Operandi. The greater number of narcotics act mainly

* Lancet, June 16, 1849.

on the brain and spinal column. "Their primary action," observes Dr. A. T. Thompson,* "is not confined to the nerves of the stomach; for, if any narcotic be applied to the surface of the body, the same results follow, although in a minor degree, as display themselves when they are taken into the stomach. If the application be made to entire membranous surfaces, the energy of the narcotic influence is in ratio to the absorbing power of the surface; and if it be injected into the thorax between the lungs and the ribs, the action is more energetic than when a narcotic is taken into the stomach. Applied to a wound or denuded surface, they are absorbed into the system, and produce their specific effects. From these facts, it is evident that narcotics operate on the brain and spinal column, having been previously absorbed and carried to these organs by circulation." Fully admitting the justice of these observations, it appears undeniable that narcotics exert a degree of local influence directly on the nerves to which they are applied, independent of the brain and spinal cord, *e.g.* the immediate alleviation of pain, or pruritus in the extremities, by the application of Opium or Belladonna. "As a part of their general sedative influence upon the nervous system," observes Dr. Ballard,† "they diminish the secretions of the liver and kidneys, arrest more or less the performance of those functions which severally attach to the different parts of the alimentary canal, retard digestion, and constipate the bowels, both by lessening the secretions poured into them, and by rendering their movements sluggish. Some dilate, while others contract the pupil; some appear to concentrate their sedative action more particularly upon the functions of the encephalon, others upon the contractile power of the alimentary or bronchial tubes; while a strict distinction is to be drawn between those which occasion constipation and those which do not, all these things being of great practical importance."

3213. *Observations on their use.* 1. The extent of the dose of a narcotic, especially in acute cases, should be regulated more by the effects which it produces, than by a regularly stated dose. When a decided effect is desired, the dose should be large.

2. In most acute inflammations, depletion, local or general, should precede the exhibition of narcotics.

3. A patient habituated to their use requires a much larger dose than one unaccustomed to them.

4. Young children bear narcotics badly.

5. The sanguine temperament is more susceptible to their action than the melancholic—women more so than men.

6. Given habitually to pregnant women, they are said to exercise an ill effect upon the fœtus in utero.

* Cyc. Pract. Med., art. Narcotics. † Mat. Med., p. 13.

7. Unless urgent circumstances require it, narcotics should be given in the evening, an hour or two before the usual hour of retiring to bed.

8. In debilitated subjects the dose should be small at first, and gradually increased, as the patient is able to bear it.

9. In congestion of the brain, and in the advanced stages of disease of the heart, narcotics require to be given with great caution, as they may depress the vital powers to a fatal extent.

10. Taken in excessive doses, they all prove powerfully poisonous.

11. When one narcotic fails, another substituted for it will often be found effectual.

12. In pulmonary affections, attended with copious secretion, the use of narcotics requires great caution, as their ill-timed or excessive employment, observes Dr. Joy, might, by at once interfering with expectoration, and with freedom of inspiration, tend to augment pulmonary congestion, and prevent the due action of the air on the blood. (Further, see *Obs. on the Use of Opium*, sect. 1939.)

The diseases in which they are employed are very numerous; they are considered at length under each individual narcotic.

3214. Refrigerants are medicines employed to diminish the morbid heat of the body in disease, and to quench inordinate thirst. They are of two classes, Internal and External.

1. *Internal Refrigerants* comprise chiefly the acids and acidulous drinks, particularly solutions of Tartaric and Citric Acids, the Citrate of Soda, and the Nitrate of Potash. These require plentiful dilution in cold water, and may be drunk freely.

2. Of *External Refrigerants*, the most important is cold water, the efficacy of which is well known, when applied to the surface of the body in fevers, particularly in the exanthemata, when these exist uncomplicated with internal inflammations. If the latter, however, are present, external refrigerants are inadmissible. The addition of a portion of vinegar, and, in some cases, of Alcohol or Ether, to the water, increases its refrigerant effect. Sponging the body with tepid water, or vinegar and water, may be substituted in some instances with advantage.

The diseases in which they are employed are febrile and inflammatory affections, acute hæmorrhages, and all diseases where there exists morbid heat of the body.

3215. Spongio-piline is a fabric composed of sponge and wool felted together in three layers, and coated on one of its surfaces with caoutchouc, which renders it impermeable. It was invented in 1847 by Mr. A. Markwick, of London. When the soft or

inner surface is moistened with water, it forms a substitute for the ordinary cataplasm, warmth and moisture being thus secured, and its applications may be further extended by sprinkling the moistened surface with charcoal, yeast, &c., as may be required in each individual case. It may also be made a vehicle for lotions and liniments. Moistened with Liquor Ammoniæ, it is stated to raise a blister in four minutes, being more efficacious than any other vesicant now in use. In intertropical practice it is comparatively of little use, the outer or caoutchouc covering being destroyed by the heat of the climate.

3216. Stimulants, or Excitants, are defined by Dr. Joy as substances which speedily augment the action of the part to which they are immediately applied, and, subsequently, after a very brief interval, that of the system at large, through the medium of sympathy.

Medicines of this class, especially when introduced into the stomach, exalt at once the sensibility of the nervous system, and the action of the muscular fibre, as well as that of the mucous membrane. They augment the strength and frequency of the heart's pulsations, give vigour to the play of the lungs, and raise the temperature of the whole body. In some instances they prove excitant, and even irritant, to the urinary organs. In their mode of action, they approach most nearly to narcotics and tonics. The former, indeed, if regard be had only to their primary action, are not always satisfactorily distinguished from stimulants. From tonics they differ, and especially the so-called diffusible stimulants (Alcohol, &c.), in the rapidity and the comparatively evanescent nature of their action, in their power of increasing the susceptibility to external impressions, and the tendency they have to be followed by exhaustion, when once their action is expended. The great majority of vegetable substances exerting a stimulant power are indebted for it to the presence of an essential oil. Camphor, Ether, or Ammonia, manifest the same quality in a very marked degree. Fermented liquors, too, from the Alcohol which they contain, rank high in the class of excitants, both in respect to their beneficial results when judiciously exhibited, and their injurious consequences when unnecessarily or too freely employed. Their habitual use, and more especially the frequent employment of those of a very stomachic or spirituous character, ought to be discouraged, as, from the agreeable but treacherous excitement, both mental and corporeal, which immediately follows their exhibition, as well as from the distressing feelings of collapse which ensue upon the termination of their action, forthwith suggesting instinctively the desire of a repetition of the dose

in a still stronger form, a tendency to confirmed dram drinking is apt to be the result. (Dr. Joy.*)

The above lengthened extract has reference principally to general or diffusible stimulants. There is, however, another class which requires separate notice; namely, those whose action is apparently local, and which have consequently been designated *specific stimulants*. So great is their number, and so diversified are their characters, that if all the medicines which, strictly speaking, belong to this class were rigidly included, it would embrace in its range most diuretics, emmenagogues, expectorants, errhines, sialagogues, many cathartics, and, in fact, all those classes of medicines, however designated, which stimulate the action, and increase the secretion of any particular organ of the body. Of special stimulants, we may mention as examples, terebinthinate medicines, upon the mucous membrane of the bronchi and air-passages; cantharides, upon the mucous coat of the genito-urinary organs and the neck of the bladder; and Nux Vomica, with its alkaloid, Strychnia, upon the excito-motory function of the spinal cord.

The objects for which they are employed. 1. To exalt a depressed state of the vital functions. 2. To remove exhaustion and debility. 3. To correct certain nervous affections, as Hysteria, &c., depending upon debility. 4. To increase secretions from particular organs.

3217. *Therapeutic Uses. Acute Diseases.* Since the appearance of the first edition of this work, the question, whether Alcohol be a food or a medicine, has been the subject of much discussion. From the experiments of Lallemand, Duroy, Perrin, and Dr. E. Smith, there appears no reason to doubt that some of the alcohol taken is discharged in an undecomposed state by the breath and the secretions, but whether the whole be so eliminated is an open question. The fact that persons have been supported for many weeks on a diet consisting purely of alcoholic stimulants would lead to the belief that a portion at least is assimilated. Before, however, the discussion of this question, the influence of alcoholic stimuli in the treatment of acute diseases had occupied a chief place in professional attention. It would not be too much to say that, as to the value of Alcohol as a medicine, the opinion of a very large section of medical men has within the last twenty years undergone a great change. With some, as with the late Dr. Todd, alcoholic stimuli have taken the place of bleeding and mercury, and all other active measures, not only in the treatment of such diseases as *Continued Fevers* and *Erysipelas*, but in acute inflammations, such as *Pneumonia* and *Pericarditis*. Others, whilst they have not pushed the use of brandy and wine

* Lib. of Med., vol. v. p. 231.

to the same extent as was advocated by Dr. Todd,* have used them more freely in acute diseases, administered them earlier, and have, in the majority of cases, replaced the bleeding, purging, nauseating, and starving formerly in vogue, by a general supporting plan of treatment, of which the administration of brandy or wine in regular but moderate doses has been a principal feature. It would be entering on too wide a field were we here to discuss the various theories on which the opposite modes of treatment have been supported. There can be no doubt that much injury was formerly inflicted in certain diseases by the *spoliative* treatment; and whilst the reckless administration of Alcohol in every case of acute disease is neither supported by science nor by common sense, on the whole less harm is likely to accrue from over-stimulation than from over-depletion. In conclusion, we quote the results to which a long experience of the effects of the stimulating treatment, in *Acute Inflammations of important organs and Fevers*, has conducted Dr. Blakiston:†—"1. The administration of stimulants was found advantageous in the great majority of acute diseases. 2. The earlier they were given, the less was the amount required in the course of the illness. 3. When given in an early stage of the disease, they seemed to shorten its duration in some cases, and in all to induce a speedy convalescence. 4. On the contrary, when the administration of stimulants was deferred, the course of the disease and the convalescence were more protracted, and much larger doses were required. 5. When the slightest sign of intoxication appeared, it was taken to point to the necessity of an immediate and considerable reduction in the amount. 6. No other symptoms seemed to call for their discontinuance. 7. When suddenly and totally discontinued during the course of the illness, serious, and in some cases fatal, effects ensued. 8. In no case was a habit of drinking known to be induced, and very rarely was any chronic disease seen to arise out of the acute attack."

3218. *Fever.* The subjoined abridged remarks of Dr. Murchison,‡ although having special reference to *Typhus and Typhoid Fevers*, offer some valuable suggestions for the use of stimulants in the advanced stages of Fevers of all descriptions.

1. There are cases of Typhus and Typhoid Fevers which, under a supporting diet and mineral acids, do not require wine or brandy at any stage of their course.

2. They are rarely required during the first five or six days, but most cases require them more or less during the second

* Clin. Lect. on certain Acute Diseases, Lond. 1860.

† P. Blakiston, M.D., Clinical Observations on the Heart and Thoracic Aorta, 1865, p. 27.

‡ On Fevers, &c., p. 269, et seq.

week. As a rule, they may be commenced about the seventh or eighth day.

3. The chief indications for their use are derived from the organs of circulation.

4. Extreme softness and compressibility of pulse, especially if irregular, intermittent, or imperceptible, are greater indications for stimulants than mere rapidity. An abnormally slow pulse (*e.g.*, 40 to 60) is occasionally a stronger indication for stimulants than a quick pulse. If the pulse becomes quicker and the face flushes under their use, they are contra-indicated; if the pulse is made slower, they may be expected to do good.

5. The state of the heart affords valuable information: if the cardiac impulse is good, stimulants are not required; but when the impulse is weak, and when the first sound is impaired or absent, a liberal allowance is demanded. In all cases of doubt the heart should be examined with the hand and stethoscope.

6. *Other indications for the use of stimulants* are—*a*, a tendency to syncope, when the patient is raised into the semi-erect posture; *b*, the eruption becoming darker and more copious; *c*, profuse perspirations, with no attendant improvement in general symptoms; *d*, coldness of the extremities; *e*, the marked presence of the typhoid state, *i.e.*, low delirium, tremor, subsultus, &c.; *f*, a dry brown tongue: if the tongue becomes clean and moist at the edges, it is a sign that the Alcohol is doing good; *g*, the presence of complications, as Pyæmia, Erysipelas, Bronchitis, Pneumonia, Bed-sores, Gangrene, &c.; *h*, persons of intemperate habits, or of advanced years: here they are required earlier and in larger quantities.

7. Scanty urine of low specific gravity, containing little urea or much albumen, and complete suppression of urine, are in themselves indications against a large amount of spirits.

8. As a rule, they are contra-indicated if there be severe darting or throbbing headache, or acute noisy delirium, especially when these symptoms co-exist, with great heat and dryness of skin and suffusion of the eyes, and with little or no improvement of the cardiac and radial pulse. When stimulants are thought to be required under such circumstances, they should be given in the intervals between the paroxysms of delirium.

9. The propriety of giving stimulants in delirium depends upon the state of the pulse: if the patient becomes more restless and delirious under their use, they do harm; if he becomes more tranquil, they do good.

Port, sherry, Madeira, brandy, gin, and whiskey are the forms in which Alcohol is best given; but when a weaker stimulus is wanted, claret and Burgundy answer well. Malt liquors are best adapted for convalescence. Spirits should be given diluted; iced soda water is the best vehicle; but when great prostration exists,

hot brandy or whiskey punch is the best stimulant. They should be given in divided doses, frequently repeated. In urgent cases, a dose may be given every hour, and, as a rule, a larger quantity will be required during the night and towards morning than in the day-time, for it is usually in the early morning that the vital powers are at the lowest ebb. Many patients are undoubtedly lost from negligence of their attendants at this time. It is impossible beforehand to decide upon the quantity required. Begin with 4 oz. of wine in twenty-four hours, and watch its effects. It will be rarely necessary to give more than 8 oz. of brandy daily at any period of the fever. Occasionally this may be exceeded. It is astonishing how much some persons, of previously temperate lives, can take with advantage. In urgent cases they should be persisted in as long as the patient is able to swallow: apparently hopeless cases have been known to recover under frequent enemas of beef-tea and brandy. When the symptoms improve, the quantity should be reduced, and smaller doses ordered at longer intervals. In most cases of great prostration, it is as well to combine other stimulants—Ether, &c.—with the wine and spirits.

3219. In the treatment of the *Exanthemata*, the lighter French wines, which contain less alcohol than Madeira, Port, or Sherry, as Bordeaux, mixed with water, make a most agreeable and refreshing beverage. It supports strength and induces sleep. In the treatment of *Scarlatina*, Claret was first proposed by Dr. A. T. Thompson, and has of late years been extensively prescribed. It is an excellent adjunct to Carbonate of Ammonia, Quinine, and the Mineral Acids. *In Diphtheria*, Dr. Ranking* insists strongly on the necessity of wine in large quantities, believing that medicine is secondary to a vigorous support of general power by stimulants.

3220. *In Apoplexy*, when the state of the patient approximates more or less nearly to a state of syncope, the pulse being weak, the aspect pinched and bloodless, and the skin cool, blood-letting is inadmissible, and the treatment the most likely to prove successful is the cautious application of warmth to the surface, and the cautious administration of diffusible stimulants, particularly the preparations of Ammonia; gr. v. of the Sesquicarbonate, or ʒss. of Sp. Ammon. Arom., may be given in Camphor Julep. Stand by, till the first stunning effect of the internal shock passes off, and carefully watch meanwhile for symptoms of reaction. (Dr. Watson.†)

3221. *In certain forms of Asthenic Paralysis*, the cautious and moderate use of diffusible as well as topical stimulants is productive of benefit. *In Local Paralysis*, where one or more sets

* On Diphtheria, 1859. † Lectures, vol. i. p. 535.

of muscles are affected, without organic lesion of the nervous centres, the stimulus of Electricity or Galvanism proves of the highest service. Abercrombie considers that stimulants are more useful, if the general system, at the time of their administration, be kept in a very low state, by spare living and occasional evacuants.

3222. *In Hysteria, connected with Debility, and in Syncope*, the cautious use of stimulants, particularly Ammonia, is attended with manifest advantage.

3223. *In Asphyxia from Submersion, Cold, &c.*, it is to stimulants, cautiously employed, that we look for hope of success. Warmth (from 90° to 100°) by baths or dry cloths or heated bricks, friction, electricity, the application of stimulant vapours to the nostrils, and of largely diluted diffusible stimuli. as Brandy, internally, form the basis of all other treatment. Artificial respiration is an important part of the treatment to be adopted at the same time.

3224. *In Cholera*, stimulants were formerly considered an indispensable and invariable resource; but of their real value many doubts are, at the present day, justly entertained. It appears certain that the indiscriminate use of stimulants, especially the more diffusible ones, as Brandy, if given in large quantities, and in a concentrated form, so far from being beneficial, is actually injurious. There are few points in medicine which require more care and discrimination than the selection of the proper cases and the proper periods for administering stimulants in Cholera. No rule can be laid down on the subject, as almost every case differs so widely from the preceding one; certain it is, that they should not be given in the excessive quantities formerly advised; that they should be given largely diluted; that they should not be trusted to alone; and that in some instances, at least, they appear to exercise a prejudicial influence. Champagne, Ammonia, and Turpentine are, perhaps, the best stimulants which can be employed.

3225. *In Passive Diarrhœa attended with Debility, in the advanced stages of Phthisis, in Chlorosis, in some forms of Atonic Dyspepsia, in Convalescence from Acute Diseases*, and in *other states of Debility*, Dr. Aran* speaks highly of the advantages to be derived from the employment of wine in the form of enema. *In Chlorosis*, its effects were most marked. The wine should be diluted with water, and care taken to prevent a loaded state of the bowels. Dr. Williams† relates a severe case of *Post-partum Hæmorrhage*, in which Port wine enemata exercised the best effects, saving, apparently, the life of the patient. He employed

* Bull. de Thérap., Jan. 15 and 30, 1855.

† Brit. Med. Journ., Sept. 4, 1858.

it in f℥iv. doses with ♏xx. of Tinct. Opii. Three enemata were found sufficient. *In the Vomiting of Pregnancy*, sparkling Moselle is productive of the best effects, allaying vomiting, and enabling the patient to retain and digest food.

3226. *In Tetanus*, the use of stimulants was first proposed by Dr. Rush,* who, considering that the disease was essentially one of debility, advised Brandy, Wine, Ammonia, Bark, &c. In America, this treatment has been much followed, and cases which recovered under their use are recorded by Drs. Hossack, Wright, Currie, Bright, and others. In one case recorded by Dr. Currie,† the patient took 140 bottles of wine, besides ale and brandy, in less than a month. The man recovered. Notwithstanding these successful cases, the unsuccessful ones far overbalance them; and stimulants are rarely trusted to alone, at the present day. They have also been recommended in *Hydrophobia*, but no reliance is to be placed upon them.

3227. *In Delirium Tremens*, the cautious use of stimulants is often not only advantageous, but necessary. In old habitual drunkards, the total withdrawal of spirituous liquors is almost certain to be followed by an increase of all the symptoms, and in some cases by great and even fatal debility. The quantity must be regulated by its effect; and that stimulant should be preferred which the patient has been in the habit of taking. When the attack, however, comes on in young men in whom the habit of drinking is not confirmed, or if it supervene after a single debauch, the employment of stimulants is not so necessary, and must be left to the judgment of the practitioner.

3228. *Dissection Wounds*, when the attendant fever, &c., assumes an adynamic form, require a liberal use of stimulants, Wine, Bark, Spices, &c. If the tongue and mouth be parched, Camphor or Turpentine should precede the use of these stimulants, and it will be necessary to administer these in forms of combination suited to the circumstances of the case, chiefly with the view of rousing and supporting the energies of life, changing the state of morbid action, and thereby preventing the extension of the local mischief, and the tendency to contamination of the fluids and solids of the frame. The diet should be nutritious and stimulant. (Dr. Copland.‡) *In Snake-bites*, the free use of stimulants is most important; the quantity should be regulated solely by the effects produced. In America, we are told by Dr. Addy,§ alcoholic stimulants are given to the extent of intoxication—a state which is regarded by the practitioners there as evidence of the effects of the poison being overcome. Dr.

* Trans. of Amer. Philosoph. Soc., vol. ii.

† Med. Reports, vol. i. p. 148.

‡ Dict. Pract. Med., vol. i. p. 306.

§ Dub. Med. Press, March 30, 1859.

Addy relates a case in which the patient was entirely relieved by the free use of Whiskey.

3229. Styptics are agents which, locally applied to bleeding surfaces, possess the power of arresting the hæmorrhage. They are to the external surface what astringents are to the internal. They include a large number of substances, as Alum, the Sulphate of Copper, the Nitrate of Silver, Matico, Liq. Ferri Perchlorid., &c. Ice is a powerful styptic; and *cold* air, allowed to have free access to the bleeding surface, all coagula being carefully removed, is stated to be no less efficacious. Mr. Skey* relates numerous cases in which the last measure was successful, after a variety of other styptics had been applied in vain. Its simplicity is a great recommendation to its adoption. (See also Astringents.) They act either by constringing the blood-vessels, or by coagulating the albumen of the blood.

3230. Suppositories are medicinal substances, of a pillular consistence, introduced into the rectum, and there allowed to remain until dissolved. They demand a short notice, as there are one or two points connected with their employment which are of practical value.

1. Care should be taken that the substance is properly inserted into the rectum, otherwise it will increase instead of diminish the sufferings of the patient. If it be only placed within the anus, under the influence of the sphincter muscle, it will produce an aggravation of all the symptoms; while if it be passed into the bowel, above the sphincter, it will speedily produce the desired soothing effect. (Mr. Bransby Cooper.†) The best way of introducing it is by means of a hollow tube, with a moveable rod inside; the bolus can thus be introduced high above the sphincter, which cannot be conveniently done by the finger.

2. Suppositories, whether opiate or purgative, should always be combined with soap, which facilitates their solution, and renders their operation more speedy, certain, and mild.

3. They will occasionally be retained, if properly inserted, when enemas are instantly expelled; although, in the majority of cases, they are of inferior efficacy.

3231. Tonics are medicines which improve the tone, not only of the muscular system, but of the digestive organs, the nerves, and the constitution generally. Their operation is in all cases gradual. They hold a middle place between Alteratives and Stimulants. From the latter, however, they differ in producing a comparatively slight amount of excitement, unaccompanied by

* Brit. For. Med. Rev., April 1851.

† Lectures, Med. Gaz., Nov. 24, 1848.

subsequent depression, and producing a more permanent tonicity in the system. In some respects, they approach nearly to astringents, but are slower in their action.

Their mode of operation is various. Some, as the pure vegetable bitters, act upon the stomach, and by improving the tone of the digestive organs, exercise a beneficial action on the system at large. Others, as the salts of Iron, act specifically upon the blood, enriching it with hæmatin and globulin, and thus invigorate the muscular tissues; whilst a third class appears to act specifically upon the nerves. Their immediate operation is obscure, but we have good examples of their efficacy in the Nitrate of Silver, the Oxide of Zinc, and Ammoniated Copper, in Epilepsy, Chorea, and other nervous affections. Strychnine and Brucine, although often classed as tonics of the nervous system, more properly belong to stimulants.

They are indicated—1, in all cases of debility unattended by inflammation; 2, in Dyspepsia; 3, in anæmia; 4, in many convulsive diseases; 5, in convalescence after fevers.

Contra-indications. 1. Plethora. 2. Active Inflammation. Dr. Paris observes of tonics, that, if given when the powers of the system are at their maximum, they will assume the character of excitants, and that their administration will be followed by collapse.

3232. Water. In the article Baths, many of the effects and uses of water, hot and cold, have been considered; but there are other important therapeutic uses to which it is applied, which deserve separate notice.

3233. *Cold Water.* Taken in moderate quantities, cold water quenches thirst, allays inordinate heat of the body, promotes the process of digestion, and, by being absorbed into the system, repairs the loss of the fluid portion of the blood, occasioned by the cutaneous and other exhalents. If taken in too large quantities, or immediately before a meal, it dilutes the gastric juice to such an extent as to incapacitate it for performing, in the normal manner, the digestive process; but if taken during a meal, and in moderate quantities, it acts partially as a solvent for the food, and thus proves highly advantageous. The large quantities of cold water advised by the hydropathists cannot but prove eventually the source of dyspeptic and other complaints, for the reason that, like most other substances, when taken in excess, it tends to weaken the tone and impair the functions of the digestive organs.

3234. *Therapeutic Uses of Cold Water.* *In Fever*, cold affusion was first brought prominently forward by Dr. Currie;* and,

* Reports on Cold Water.

although its value is now generally acknowledged, the many inconveniences attending its use have generally caused it to be superseded by simply sponging the body with cold water, or vinegar and water, which, though it causes a less shock to the system, produces one of the most beneficial effects of cold affusion, namely, a reduction of the morbid heat.

The mode of applying cold affusion, as proposed by Dr. Currie, is to have the patient stripped naked, and from three to five gallons of water, at 50° or 60° F. in the winter, and 60° or 70° in the summer, thrown over him. Water alone, or salt and water, or vinegar and water, may be employed. When applied with the undermentioned cautions, the effects of cold affusion are to diminish the morbid heat of the skin, to lower the pulse, and to induce subsequent perspiration and sleep. The safest time for its application is when the exacerbation is at its height, or immediately after its declination has begun. Dr. Currie directed its employment at from six to nine o'clock in the evening.

Cautions in the use of Cold Affusion. 1. It should never be employed when there is any sense of chilliness, although the thermometer indicate a morbid degree of heat.

2. It should never be employed in the cold stage of fever.

3. It should never be employed when the heat, measured by the thermometer, is less than, or equal to, the natural heat (96° F.), notwithstanding the patient feel no sense of chilliness.

4. It should never be employed when the body is under a profuse sensible perspiration.

5. It should not be employed if the fever be complicated with any visceral inflammation.

6. The earlier in the disease it can be employed, the more benefit will be derived from it; in the more advanced stages, however, it will be found to moderate the symptoms, but in no case will it "cut short" the fever, as supposed by Dr. Currie.

7. The patient should always immerse his hands for a few moments in the fluid before it is applied to any other part of the body. It prevents the shock being too violent.

3235. *Sponging the body in Fevers* is, in most cases, preferable to affusion, although it fail to induce the same impression on the system. Cold water, either alone or mixed with vinegar, may be used, and the whole body should be freely sponged over, once or twice daily. It reduces the morbid heat of the surface, is extremely grateful and refreshing to the patient, and may be used with perfect safety, unless the skin be high above the natural standard, or there be any greatly irregular distribution of temperature. In the latter cases, tepid water should be substituted for cold. It is equally applicable to *Continued Inflammatory and other Fevers* as to *Small-pox, Measles, Scarlatina, and the Exanthemata* generally. The feelings of the patient are the

true guide as to the temperature ; if cold applications are disagreeable, tepid ones should be substituted, and *vice versâ*. *In Typhus and Typhoid Fevers*, also, the practice is fraught with benefit. Dr. Murchison* advises that small quantities of Condy's Fluid or Muriatic Acid (℥j. ad Oj.) should be added to the water: from this the patient not only experiences the greatest comfort and benefit, but it likewise diminishes the risk to the attendants by preventing the accumulation of poisonous exhalations.

3236. *As a drink in Fevers and Inflammations*, cold water may be taken *ad libitum;* but the addition of some mucilaginous agents, as barley, rice, &c., and its being acidulated with lemon-juice or one of the vegetable acids, renders it more refrigerant and agreeable to the palate.

3237. *In Tubercular Meningitis*, cold affusion is spoken of in high terms by Dr. Hahn.† He states that he has several times succeeded in rousing the child, after the supervention of complete coma. Cold evaporating lotions to the shaven scalp are applicable during the whole course of the disease. In adults, ice may be advantageously substituted.

3238. *In the Plague*, cold affusion and ablution are highly spoken of by Faulkner.

3239. *In Delirium Tremens*, cold affusion has been advised by Horn, Ritcher, Hoegh-Guldberg, and others. Lind, Barkhausen, Burrow, Albers, and Armstrong, have also found cold affusion serviceable, but agree in stating that it should not be employed if any profuse perspiration be present. In such cases, they recommend the substitution of tepid affusion over the head, the body being at the same time immersed in a hot bath. It is altogether inadmissible if there be much depression of the vital powers. *In Narcotism from over-doses of Opium and Belladonna*, cold affusion is often an effectual means of rousing the patient.‡

3240. *In Delirium, arising in the course of Fevers, or from Inflammation of the Brain or other causes*, the application of cold fluids to the head has received the approbation of all writers. "If, however," observes Dr. Copland,§ "it (cold) be continued too long, or after morbid heat has been subdued, and the features have shrunk, it will be injurious by depressing the nervous energies too low, and favouring the supervention of coma, or violent agitations, terminating in fatal exhaustion."

3241. *In Laryngismus Stridulus*, it is of the highest importance to diminish, as far as possible, the nervous susceptibility of the

* On Fevers, p. 253.
† Prov. Journ., Nov. 14, 1849.
‡ Amer. Journ. of Med. Sci., July 1859.
§ Dict. Pract. Med., vol. i. p. 495.

child. In order to effect this, Dr. Merei* strongly advises washing the whole body with water, used gradually colder and colder every morning, for a time varying from one to four minutes, together with cold affusion on the head. If the skin of the infant does not seem sufficiently active, he directs the washing to be performed with a mixture of 1 part of Alcohol, and 8 to 15 parts of water. After the washing, the body should be well dried, and, if the day be fine, the child may be taken out in the open air. In children whose constitutions are not much debilitated, this treatment offers the best chance of success.

3242. *In the Convulsions of Children, in Puerperal and other Convulsions*, the application of cold water to the head is a measure attended with salutary effects.

3243. *In Cholera*, the employment of cold water was first proposed and carried into practice by Dr. Shute, of Gloucester; and from his experience, as well as from that of others, it appears certain that the free internal use of cold water is productive of the most beneficial effects; and that, when it is withheld, the rate of mortality has been much higher than when it has been allowed. On referring to Mr. Ross's table (sect. 1414), it will be seen, that wherever cold water formed part of the treatment, the ratio of deaths was very much lower than when stimulants, or in fact any other remedy, had been employed. Dr. Shute states that, under this system, the state of collapse is sometimes prolonged to two, three, or four days; and others have remarked that, during the reaction, a paroxysm of raging delirium is apt to take place. It is not, therefore, an inoperative system. The cold water is supposed to act, by supplying to the blood the water it loses by the intestinal evacuations, by taking up the urea, determining to the kidneys, and relieving the blood of the presence of this poisonous agent.† When water is given, it should be as cold as is procurable, iced if possible; it should be taken in large and repeated draughts, and although for the first four or five times it may be rejected, its use should be persevered in. It soon remains on the stomach; and when this is effected, a beneficial change in the state of the patient is soon observable. The intense thirst which usually accompanies Cholera would alone justify the adoption of this treatment. Whatever other treatment is adopted, cold water in copious draughts will prove a valuable auxiliary, perfectly safe, agreeable to the patient, and likely to be productive of the best effects.

3244. *Nervous Palpitations.* A draught of cold water is an efficient expedient for calming the violent action of a palpitating

* Edin. Monthly Journ., Nov. 1850.

† See Mr. Ross's Lectures on Cholera, Med. Times, vol. xix. p. 107.

heart. This measure would not, however, be advisable in persons predisposed to syncope. (Dr. Williams.*)

3245. *In Uterine Hæmorrhage*, enemas of iced water into the rectum have a marked temporary effect in arresting the discharge. Vaginal injections of cold water may be employed at the same time, and cold water applied to the abdomen.

3246. *Hot Water* is a valuable therapeutic agent. For internal use the temperature should be about 100° F. If drunk at this temperature, it causes nausea, and if taken in large draughts, vomiting; it also acts as a diaphoretic and diluent, becomes absorbed, and attenuates the blood. Externally applied, it is, at a moderate heat, emollient and sedative, relaxing the tissues to which it is applied. At a high temperature, 212° F., it acts as a powerful vesicant and counter-irritant. The vapour, when inhaled, acts as a topical, sedative expectorant, relieving the constriction of the vessels, and thereby facilitating expectoration.

3247. *Therapeutic Uses of Hot Water. In Croup*, hot-water applications were first recommended by Dr. Lehman.† Sponges filled with water as hot as the little patient can bear, should, on the accession of an attack, be applied immediately beneath the chin, and along the whole course of the larynx. It should be steadily persevered in for half an hour; if it do not produce benefit in that time, it may be considered to have failed. It should be employed at the first outset of the attack. This simple plan is stated to be very successful in arresting the progress of the disease. *In Laryngismus Stridulus and Laryngitis*, it may also be used with a prospect of success. It has this merit, at any rate, that it can do no harm, and is capable of producing a vast amount of benefit.

3248. *In Cynanche Tonsillaris, Cynanche Maligna, and other Affections of the Throat*, the inhalation of the vapour of hot water will afford, in most instances, even in the acute stages, a remarkable amount of relief. It may be frequently repeated. *Acute and Chronic Bronchitis, and Chronic Catarrhs*, are often signally benefited by the same means. It greatly facilitates expectoration. *In Hay Asthma*, the vapour of hot water is advised by Dr. Mackenzie.‡

3249. *In Asthma*, it is often serviceable to stupe the whole chest, during the fit, with flannel wrung out of water as hot as can be borne. (Graves.§)

3250. *In Fever, as a means of relieving the Headache, Restlessness, &c.*, Dr. Graves‖ considers that the local application of hot

* Lond. Journ. of Med., April 1850.
† Dub. Med. Journ., vol. viii.
‡ Lond. Med. Journ., July 1, 1851.
§ Clin. Lect., vol. ii. p. 87.
‖ Ibid., p. 537.

water is far more effectual than the cold lotions usually employed. He remarks that in 1832, a violent influenza, accompanied by the most distressing headache, attacked thousands in Dublin; and that this intense pain in the head was relieved by nothing so effectually as by diligent stuping of the temples, forehead, occiput, and nape of the neck, with water as hot as could be borne. Acting upon this advice (which, like all that proceeded from Dr. Graves, is worthy of careful attention), I have substituted hot for cold applications in the treatment of headaches in fever, and the result has been most satisfactory. *In Congestive Headaches*, Dr. Graves considers that the application of leeches to the feet, and subsequently immersing the legs as far as the knees in water as hot as can be borne, is more effectual than the abstraction of blood from the head or its immediate vicinity. The hot foot-bath, without the leeches, often proves effectual.

3251. *In Piles attended with great irritation and pain*, much relief is often obtained by sitting over the steam of hot water for fifteen or twenty minutes, and immediately applying a warm bread-and-milk poultice. These measures should be repeated five or six times a day. (Graves.) *In Pruritus Genitalium*, the same measure, or bathing the parts with hot water and soap every night and morning, may be resorted to with a great deal of advantage. *In Prurigo Senilis, and other forms of Prurigo*, the same treatment may be adopted with benefit.

3252. *In Dyspepsia*, attended with a sensation of coldness at the stomach, and with cold extremities, a cupful of water, taken as hot as it can be drunk, affords very considerable relief. (Dr. A. T. Thompson.*)

3253. *In Chronic Cystitis*, injections of *tepid* water into the bladder are in many instances productive of excellent effects. Not more than f℥iss. or f℥ij. should be injected at once, and it should not be retained more than thirty or forty seconds. It may be repeated once or twice in twenty-four hours. (Sir B. Brodie.†)

3254. *During the passage of Renal Calculi*, much relief will often be obtained by the free injection of warm water into the bowels. The hot bath and hot fomentations may be employed at the same time with advantage. The water should be as hot as the patient will bear. (Dr. Prout.‡)

3255. *In Rigidity of the Os Uteri during Labour*, Dr. Tyler Smith § recommends the use of warm-water enemas. "They act," he says, "on the uterus as a local fomentation, and they excite another salutary reflex action; namely, that which exists between the sphincter ani and the os uteri. The dilatation of

* Dispensatory.
† Diseases of the Urinary Organs, p. 110.
‡ On Stomach and Renal Diseases, p. 312.
§ Lancet, Nov. 25, 1848.

the sphincter ani, and even of the sphincter vesicæ, exerts a sensible influence upon the os uteri when its closure is simply, or chiefly, sphincteric." Dr. Scanzoni* advises, in preference to all other means, a continuous douche of warm water upon the os and cervix uteri, by means of an appropriate instrument.

3256. *In Scarlatina*, Mr. Bulley† advises hot-water compresses to the epigastrium. They are said to prove useful. He also wraps the patient in blankets, in order to produce copious perspiration. The last piece of advice is not likely to be generally adopted, nor indeed is it advisable that it should. The vapour of hot water to the throat is very serviceable.

3257. *In Eczema*, M. Trousseau‡ states that he found the application of water, as hot as can be borne, to the eruption, very efficacious. At first, the local irritation seems to increase; but this is only temporary, and improvement is rapidly observed.

3258. *To Ulcers, Wounds, Inflamed Surfaces, &c.*, the application of what are called water dressings was first recommended, of late years, by Dr. Macartney,§ of Dublin; and they have in many instances been substituted with great advantage for poultices. Mr. Liston,‖ who entertained a great aversion to the latter application, observes, that heat and moisture, by which qualities a poultice produces its soothing and beneficial effects—by which the surface is relaxed, its capillary circulation encouraged, and the discharge promoted—are amply afforded by water dressing, without any of the weight, putrefactive fermentation, stench, and filth, which is inseparable even from the best and most scientifically contrived cataplasms. Water dressing is exceedingly simple, consisting only of a piece of lint, of thick texture, and of sufficient size to cover the wound, soaked in tepid water. This is placed on the affected part, and the whole enveloped in an ample piece of oiled silk, so as effectually to prevent evaporation. In some cases cold water may be substituted for tepid. The sensations of the patient are here the best guide. *For Abscesses*, the warm-water dressings, as advised above, prove, in many instances, an effectual substitute for poultices, but the latter are generally more soothing and agreeable to the feelings of the patient. *For Phagedenic Ulcerations*, few applications are more serviceable than that of water poured from a small height in a stream, by the process called *Irrigation*. Mr. E. Cock¶ appears to have first advocated its employment. This treatment has proved most successful in the hands of Dr. J. Sutherland amongst the natives of India.**

* Rev. Méd. Chir., Dec. 1848.
† Med. Times, Aug. 26, 1849.
‡ Ibid., vol. xviii.
§ Treatise on Inflammation, Lond. 1838, 8vo.
‖ Pract. Surg., 4th Ed., p. 32.
¶ Med. Times and Gaz., April 12, 1856.
** Indian Annals of Med. Science, April 1857.

3259. *In Remittent and other Fevers*, the treatment by wet-sheet packing, originally introduced by the hydropathists, has been resorted to by regular practitioners in India and elsewhere. Dr. Morehead,* from observation of numerous cases treated on this plan, draws the following conclusions:—1. In the conditions which justify cold affusion, it is possible that the wet sheet renewed every ten or fifteen minutes, for two or three times, may be a convenient and effective mode of reducing the temperature of the body. Should there, however, be tendency to hepatic or splenic congestion, the wet sheet is likely to do harm by increasing the congestion. 2. With regard to its use during the height of the exacerbation, it is not denied that moisture of the surface of the body may somewhat modify this state, by inducing diaphoresis; but it is now well understood that this is not a leading indication in the cure of the disease, and that means which merely aim at this can never occupy other than a subsidiary position. 3. Employed towards the close of an exacerbation, it is not improbable that the increased diaphoresis caused by it may increase exhaustion, and may produce it when it would not otherwise have occurred. 4. Its routine employment, by directing the chief curative means to the reduction of febrile heat, must tend to withdraw attention from those methods by which local inflammation, &c., may be detected. Whilst the value of causing the skin to perform its share in the elimination of morbific matter is admitted, can there, asks Dr. Morehead, be a greater error in practice than that of acting on the skin alone, and neglecting the other important excretory organs? It is evidently one of those measures which, though beneficial in well-selected cases, is capable of great abuse when employed without due discrimination.

* Disease in India, &c., p. 137.

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